

RESTRICTED

~~CONFIDENTIAL~~

SERIAL NO. 13

GENERAL INFORMATION

DESTROYER NUMBER 423 U. S. S. GLEAVES

DESTROYER NUMBER 424 U. S. S. NIBLACK

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

Office Of
Supervisor of Shipbuilding, U.S.N.
Bath Iron Works Corporation,
Bath, Maine
1942

SECTION A-1

GENERAL

BASES OF HULL MEASUREMENTS

THE 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' 10-11/16" 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 MIDSHIP PERPENDICULAR (M.P.) is located 9" aft of Frame 97.

THE MOLDED BASE LINE (B.L.) is located 15/16" above the bottom of the midship portion of the keel.

DRAFTS are measured from base line for draft marks as per Plan Nos. 177-11-17 (DD423), Bureau No. 302145, and 178-11-17 (DD424), Bureau No. 302175.

PROJECTIONS: BELOW BOTTOM OF KEEL

Description	Projection Below M.B.L.	Frame	Location From $\varnothing$	Side
Propeller	4' 1-5/8" (DD423)	185	8' 6"	Port
	4' 1-25/32" (DD424)		8' 6-3/16"	
Propeller	4' 0-23/32" (DD423)	185	8' 6"	Stbd.
	4' 2-7/32" (DD424)		8' 6-3/16"	
Rudder	18"	188-193	On $\varnothing$	
Rotating Supersonic Transceiver	See Note Below	14-3/4" Ford. of 25		Port & Stbd.

Note: $\varnothing$ of Projector, when in operating position, is 19-1/16" below bottom of keel.

SECTION A-1

GENERAL (Cont'd.)

PRINCIPAL DIMENSIONS OF HULL

	<u>DD423</u>	<u>DD424</u>
Length overall	348' 2-1/4"	347' 4-13/16"
Length between perpendiculars =(length on D.W.L.)	340' 11-1/4"	340' 8-3/8"
Extension of vessel forward of F.P.	5' 0"	4' 7"
Extension of vessel aft of A.P.	2' 3"	2' 1-7/16"
Breadth, molded, maximum	36' 0"	35' 6-7/8"
Breadth, outside of plating maximum	36' 1-1/8"	35' 8"
Depth, molded, at M.P. (9" Aft of Fr. 97)	19' 7-7/8"	19' 7-7/8"
Freeboard at bow to D.W.L.	21' 2-1/2"	21' 2-1/2"
Freeboard at stern to D.W.L.	10' 5-1/2"	10' 5-1/2"
Displacement, standard (designed)	1630 Tons	1630 Tons
Displacement, to D.W.L.	1816 Tons	1816 Tons
Displacement, trial (Bu.Est.)	2060.0 Tons	2060.0 Tons

FRAME SPACING

Frames are numbered from 0 at the forward perpendicular to 194, which is 18" Fwd. of 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 overhang are designated as "A" and "B", and are spaced 21" forward of the forward perpendicular.

Frame spacing is 21" from F.P. to Fr. 77
 Frame spacing is 17-1/2" from Fr. 77 to 80
 Frame spacing is 21" from Fr. 80 to 86
 Frame spacing is 21" from Fr. 86 to 86-1/2
 Frame spacing is 10-1/2" from Fr. 86-1/2 to 87
 Frame spacing is 21" from Fr. 87 to 194

SECTION A-1

GENERAL (Cont'd.)

CALCULATED DATA AT DESIGN DRAFT 10 FOOT 10-11/16 INCH WATERLINE

Tons per inch immersion	21.44 Tons
Area of water plane	9010 Sq.Ft.
C.G. of water plane aft of frame 97	20.23 Feet
Moment to change trim one inch	416 Ft.Tons
C.B. above bottom of keel	6.69 Feet
C.B. aft of frame 97	5.63 Feet
Transverse metacenter above C.B.	11.22 Feet
Longitudinal Metacenter above C.B.	933 Feet
Wetted Surface	14200 Sq.Ft.
Ratio, length between perpendiculars to beam, maximum	9.47
Area of Midship Section	307 Sq.Ft.

Note: For data on stability, see Booklet of Inclining
Experiment Data and the Damage Control Book.

SECTION A-1

GENERAL (Cont'd.)

APPROXIMATE CAPACITIES

Oil fuel and diesel oil - normal load	325 Tons
Oil fuel - full load (95% capacity)	443.53 Tons
Reserve fuel oil tank (95% capacity)	14.09 Tons
Diesel oil - full load (95% capacity)	36.57 Tons
Potable water (full capacity)	45.98 Tons
Reserve feed water (full capacity)	48.50 Tons

MISCELLANEOUS DATA

Inclination of propeller shafts	
Vertical - down and aft	(Stbd. 2 Deg. 18 Min. 41 Sec. (Port 3 Deg. 56 Min. 17 Sec.
Horizontal -	0 Deg.
Area of rudder (projected)	86 Sq. Ft.
Length of signal yard	21'-0"

HEIGHTS ABOVE DESIGN DRAFT 10 FOOT 10-11/16 INCH WATERLINE

MAIN BATTERY	DD423	DD424
5" Gun Mount No. 1	25' 10-7/16"	25' 10-5/16"
5" Gun Mount No. 2	32' 10-17/32"	32' 10-1/2"
5" Gun Mount No. 3	23' 11-1/2"	23' 11-7/16"
5" Gun Mount No. 4	23' 11-7/16"	23' 11-15/32"
5" Gun Mount No. 5	16' 8-1/16"	16' 8-1/16"

SECONDARY BATTERY

50 Cal. A.A. Mach. Gun No. 1	30' 6-13/16"	30' 3-5/16"
50 Cal. A.A. Mach. Gun No. 2	30' 6-13/16"	30' 3-5/16"
50 Cal. A.A. Mach. Gun No. 3	22' 9-5/16"	23' 0-5/16"
50 Cal. A.A. Mach. Gun No. 4	22' 9-5/16"	23' 0-5/16"
50 Cal. A.A. Mach. Gun No. 5	30' 6-5/16"	30' 6-5/16"
50 Cal. A.A. Mach. Gun No. 6	30' 6-5/16"	30' 6-5/16"

TORPEDO TUBES

Quintuple Mount No. 1 (C.L.)	20' 7-5/16"	20' 7-5/16"
Quintuple Mount No. 2 (C.L.)	20' 7-5/16"	20' 7-5/16"

R

SECTION A-1

GENERAL (Cont'd.)

HEIGHTS ABOVE DESIGN DRAFT 10 FOOT 10-11/16 INCH WATERLINE
(Cont'd.)

BATTERY CONTROL AND
OBSERVATION FEATURES

DD423

DD424

Centerline range finder Top of pilot house ford. (C.L.)	46' 8-5/16"	46' 6-9/16"
Centerline 5" Gun director Centerline range finder (C.L.)	55' 5-13/16"	55' 4-5/16"
Centerline Pelorus on Nav. Bridge (P&S)	40' 2-13/16"	36' 0-5/16"
Centerline torpedo director (port)	41' 6-13/16"	41' 7-13/16"
Centerline torpedo director (stbd)	41' 6-13/16"	41' 7-13/16"
Centerline 12" searchlight on Nav. Bridge (port)	40' 5-13/16"	40' 6-13/16"
Centerline 12" searchlight on Nav. Bridge (stbd)	40' 5-13/16"	40' 6-13/16"
Centerline 24" searchlight top of pilot house (Z)	47' 6-13/16"	47' 5-13/16"
Centerline 36" searchlight on after search- light platform (C.L.)	28' 9"	28' 10"
Centerline Radio direction finder (C.L.)	45' 7-5/16"	45' 7-5/16"

NAVIGATION AND SIGNALING
FEATURES

Top of flag and pennant staff cap polemast	87' 9-5/16"	87' 9-5/16"
Top of battle staff cap top aft searchlight Plat.	42' 0"	42' 0"



SECTION A-1

GENERAL (Cont'd.)

HEIGHTS ABOVE DESIGN DRAFT 10 FOOT 10-11/16 INCH WATERLINE (Cont'd.)

NAVIGATION AND SIGNALING FEATURES (Cont'd.)

	<u>DD423</u>	<u>DD424</u>
Centerline of upper truck light on polemast	83' 2-13/16"	83' 3-13/16"
Centerline of lower truck light on polemast	82' 9-13/16"	82' 10-13/16"
Centerline of wake light on ensign staff	14' 2-1/2"	14' 2-1/2"
Signal yard on polemast to C.L. of yard	75' 8-5/16"	76' 2-13/16"
Center of masthead light on top of pilot house	57' 5-1/2"	57' 5-1/2"
Centerline of speed light on Battle Staff	30' 9"	30' 9"
Centerline of upper towing light on top of pilot house	51' 5-13/16"	51' 5-13/16"
Centerline of range light on polemast	73' 5-5/16"	73' 9-13/16"
Centerline of steering light on jack staff	32' 8-11/16"	32' 8-11/16"
Top of jack staff cap, forecastle deck	33' 2-5/16"	33' 2-5/16"
Top of ensign staff cap, main deck	23' 11-1/4"	23' 11-1/4"
Centerline of stern light on ensign staff	17' 2-1/2"	17' 2-1/2"
Center of lower towing light on top of pilot house	45' 5-13/16"	45' 5-13/16"

MISCELLANEOUS

Top of ford. smoke stack (Athwartship C.L.)	48' 1-13/16"	49' 2-5/16"
Top of aft smoke stack (Athwartship C.L.)	44' 4-5/16"	45' 4-5/16"

SECTION A-1

GENERAL (Cont'd.)

HEIGHTS ABOVE DESIGN DRAFT 10 FOOT 10-11/16 INCH WATERLINE
(Cont'd.)

HEIGHT OF ALL BRIDGES AND PLATFORMS ABOVE WEATHER DECK
(UPPER SIDE OF PLATING AT $\frac{1}{2}$ OF SHIP)

	<u>DD423</u>	<u>DD424</u>
Centerline of Main Deck at Fr. 95	Above 10' 1-5/16"	10' 1-5/16"
	D.W.L.	
Centerline of fore- castle deck at mast & top of midship deck house	" 17' 9-5/16"	17' 9-5/16"
Centerline of after deck house	" 17' 0-5/16"	17' 0-5/16"
Centerline of superstructure deck	" 25' 6-13/16"	25' 3-5/16"
Centerline of searchlight platform	" 23' 6"	23' 7"
Centerline of navigating bridge	" 34' 11-5/16"	35' 0-5/16"
Centerline of top of pilot house	" 42' 6-13/16"	42' 5-13/16"



SECTION A-1

GENERAL (Cont'd.)

PROPELLING MACHINERY

DD423 - U.S.S. GLEAVES

BOILERS

		Manu- facturer	Type	Designed Working Pressure
#1 Boiler				
Steam Drum	- Z23888	Babcock	Oil Fired	665#
Water Drum	- Z23889	& Wilcox	Express with Super- heater & Economizer	
#2 Boiler				
Steam Drum	- Z23955	Babcock	Oil Fired	665#
Water Drum	- Z23956	& Wilcox	Express with Super- heater & Economizer	
#3 Boiler				
Steam Drum	- Z23890	Babcock	Oil Fired	665#
Water Drum	- Z23893	& Wilcox	Express with Super- heater & Economizer	
#4 Boiler				
Steam Drum	- Z23894	Babcock	Oil Fired	665#
Water Drum	- Z23895	& Wilcox	Express with Super- heater & Economizer	

SECTION A-1

GENERAL (Cont'd.)

PROPELLING MACHINERY (Cont'd.)

DD423 - U.S.S. GLEAVES (Cont'd.)

TURBINES

Number Stbd.	Manu- facturer	Type	No. Stages of Expan- sion Per Turbine	Designed R.P.M.
Cruising 1-A-8218-1	Westing- house E. & M. Co.	Cross Compound with Cruising Turbine	2 Row Cur- tis Im- pulse 7 Rateau Stages	5063 at 20 knots
H.P. 1-A-8219-1			2 Row Cur- tis Im- pulse 11 Rateau	5703
L.P. 1-A-8220-1			8 Double Flow Reaction	4803
Astern 1-A-8220-1			2 Row Im- pulse at each end of L.P. Turbine	2783 at 226 Prop. R.P.M.
Port Cruising 1-A-8218-2	Westing- house E. & M. Co.	Cross Compound with Cruising Turbine	2 Row Cur- tis Im- pulse 7 Rateau Stages	5063 at 20 knots
H.P. 1-A-8219-2			2 Row Cur- tis Im- pulse 11 Rateau	5703
L.P. 1-A-8220-2			8 Double Flow Reaction	4803
Astern 1-A-8220-2			2 Row Im- pulse at each end of L.P. Turbine	2783 at 226 Prop. R.P.M.

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.)

DD424 - U.S.S. NIBLACK

BOILERS

		Manu- facturer	Type	Designed Working Pressure
#1 Boiler				
Steam Drum	- Z23896	Babcock	Oil Fired	665#
Water Drum	- Z23897	& Wilcox	Express with Super- heater & Economizer	
#2 Boiler				
Steam Drum	- Z23898	Babcock	Oil Fired	665#
Water Drum	- Z23899	& Wilcox	Express with Super- Heater & Economizer	
#3 Boiler				
Steam Drum	- Z23900	Babcock	Oil Fired	665#
Water Drum	- Z23901	& Wilcox	Express with Super- heater & Economizer	
#4 Boiler				
Steam Drum	- Z23902	Babcock	Oil Fired	665#
Water Drum	- Z23903	& Wilcox	Express with Super- heater & Economizer	

SECTION A-1

GENERAL (Cont'd.)

PROPELLING MACHINERY (Cont'd.)

DD424 - U.S.S. NIBLACK (Cont'd.)

TURBINES

Number Stbd.	Manu- facturer	Type	No. Stages of Expan- sion Per Turbine	Designed R.P.M.
Cruising 1-A-8218-3	Westing- house E. & M. Co.	Cross Compound with Cruising Turbine	2 Row Curtis Impulse 7 Rateau Stages	5063 at 20 knots
H.P. 1-A-8219-3			2 Row Curtis Impulse	5703
L.P. 1-A-8220-3			11 Rateau 8 Double Flow Re- action	4803
Astern 1-A-8220-3			2 Row Im- pulse at each end of L.P. Turbine	2783 at 226 Prop. R.P.M.
Port Cruising 1-A-8218-4	Westing- house E. & M. Co.	Cross Compound with Cruising Turbine	2 Row Curtis Impulse 7 Rateau Stages	5063 at 20 knots
H.P. 1-A-8219-4			2 Row Curtis Impulse	5703
L.P. 1-A-8220-4			11 Rateau 8 Double Flow Re- action	4803
Astern 1-A-8220-4			2 Row Im- pulse at each end of L.P. Turbine	2783 at 226 Prop. R.P.M.

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.)

PROPELLERS

No.	Type	Manu- facturer	No. Blades	Dia.	Pitch	Shaft Dia.	Des. RPM	Des. Shaft H.P.
2	Solid	Hyde Wind- lass Co.	3	11'- 3"	12'- 2"	15 1/4" Inside Sleeve	390	50,000 2- Shafts

Complete information and instructions concerning the propelling machinery may be obtained from the "Instruction Books for Main Propulsion Turbines", which were furnished the vessel 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	Caliber	Location			Elevation	Depression	Train
			Deck	Frame	Side			
1	5"	38	Forecastle	30	On $\angle$	85°	15°	300°
2	5"	38	Superstructure	43	On $\angle$	85°	15°	300°
3	5"	38	Top of After Deck House	134	On $\angle$	85°	15°	226°
4	5"	38	Top of After Deck House	155	On $\angle$	85°	15°	300°
5	5"	38	Main	170	On $\angle$	85°	15°	300°

A 5" Loading machine, mark XVI is located on the Main Deck between frames 122-1/2-129 on $\angle$.

SECONDARY BATTERY (A.A. GUNS)

Gun No.	Bore	Caliber	Location			From $\angle$ of Ship	Elevation	Depression	Train
			Deck	Frame	Side				
1	20MM		Superstructure	53-54	Stbd.		87°	5°	360°
2	20MM		Superstructure	53-54	Port		87°	5°	360°
3	20MM		Top of Midship Deckhouse	107-108	Stbd.		87°	5°	360°
4	20MM		Top of Midship Deckhouse	106-1/2-108	Port		87°	5°	360°
5	20MM		Top of Aft Deckhouse	146-148	Stbd.		87°	5°	360°
6	20MM		Top of Aft Deckhouse	146-148	Port		87°	5°	360°

SECTION A-5

ORDNANCE AND ORDNANCE OUTFIT (Cont'd.)

TORPEDO TUBES

Torpedo Tube Number	Diam- eter Torpedo	Location				From ℓ of Ship	Train	
		Length Torpedo	Deck	Frame	Side		Fwd.	Aft
1 Quin- tuple	21"	22'- 7-1/16"	Top of Midship Deck House	94-95	ℓ		45°	45°

"K" - Guns or overside depth charge projectors are located on the main deck between Frames 123 and 157 Port and Starboard.

Depth Charge tracks are located on the main deck, port and starboard at Frames 186 to 12" aft of the stern.

