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Rpt. C.11.

Index. No. (For London Office only.)

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

5 DEC 1935

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having ONE DECK (PART IRON. PART STEEL)

Port of Survey SYDNEY, N.S.W.

PAZ (Type of Superstructures.)

Date of Survey 28th OCTOBER 1935

Ship's Name "IRON MONARCH" Nationality and Port of Registry BRITISH U.S.A. Official Number 132430 Gross Tonnage 4260 Date of Build 1914-2

Moulded Dimensions: Length 364.0 Breadth 30.5 Depth 28.6

Moulded displacement at moulded draught = 85 per cent. of moulded depth 9784 10130 tons

Coefficient of fineness for use with Tables .785 .796

Name of Surveyor Jas. C. Graham

Particulars of Classification 4.100 A1
S.S. S.W. N.S. 8.23
S.S. N.S.W. N.2-22

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth <u>28.6</u>	(a) Where D is greater than Table depth (D - Table depth) R = <u>(28.6 - 24.27) x 2.8 = +11.96</u>	Moulded Breadth (B) <u>30.5</u>
Stringer plate <u>.04</u>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R = <u>4.27</u>	Standard Round of Beam = $\frac{B \times 12}{50} = \frac{30.5 \times 12}{50} = 12.12$
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures	Ship's Round of Beam = <u>12</u>
Depth for Freeboard (D) = <u>28.54</u>		Difference <u>.12</u>
		Restricted to
		Correction = $\frac{\text{Diff}}{4} \times (1 - \frac{S_1}{L}) = \frac{.12}{4} \times (1 - \frac{30.5}{30.5}) = -0.02$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed	<u>29.12</u>	<u>29.12</u>	<u>7.20</u>	<u>✓</u>	<u>29.12</u>
„ overhang					
R.Q.D. enclosed					
„ overhang					
Bridge enclosed	<u>106.25</u>	<u>106.25</u>	<u>7.0</u>	<u>x 7/714 =</u>	<u>104.17</u>
„ overhang aft					
„ overhang forward	<u>33.08</u>	<u>33.08</u>	<u>7.25</u>	<u>✓</u>	<u>33.08</u>
„ overhang					
Trunk aft					
„ forward					
Tonnage opening aft					
„ forward					
Total	<u>168.45</u>	<u>168.45</u>			<u>166.37</u>

Standard Height of Superstructure 7.14

„ „ R.Q.D. ✓

Deduction for complete superstructure 39.6

Percentage covered $\frac{S}{L} = \frac{168.45}{462.8} = 36.4$

„ $\frac{S_1}{L} = \frac{166.37}{462.8} = 35.9$

„ $\frac{E}{L} = \frac{166.37}{462.8} = 35.9$

Percentage from Table, Line A. ✓
(corrected for absence of forecastle (if required))

Percentage from Table, Line B. 32.34
(corrected for absence of forecastle (if required))

Interpolation for bridge less than 2L (if required) ✓

Deduction = 39.6 x 32.34 = 12.79

SHEER CORRECTION.

Station	Standard Ordinate	S	Product	Actual Ordinate	Effective Ordinate	S	Product
A.P.	<u>46.40</u>	<u>1</u>	<u>46.40</u>	<u>59.0</u>	<u>59.0</u>	<u>1</u>	<u>59.0</u>
L from A.P.	<u>20.645</u>	<u>4</u>	<u>82.58</u>	<u>24.0</u>	<u>24.0</u>	<u>4</u>	<u>96.0</u>
L „	<u>5.105</u>	<u>2</u>	<u>10.21</u>	<u>6.0</u>	<u>6.0</u>	<u>2</u>	<u>12.0</u>
Amidships	<u>-</u>	<u>4</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>4</u>	<u>-</u>
L from F.P.	<u>10.21</u>	<u>2</u>	<u>20.42</u>	<u>11.5</u>	<u>11.5</u>	<u>2</u>	<u>23.0</u>
L „	<u>41.29</u>	<u>4</u>	<u>165.16</u>	<u>45.5</u>	<u>45.5</u>	<u>4</u>	<u>182.0</u>
F.P.	<u>92.80</u>	<u>1</u>	<u>92.80</u>	<u>107.0</u>	<u>107.0</u>	<u>1</u>	<u>107.0</u>
Total	<u>417.6</u>	<u>✓</u>	<u>417.57</u>				<u>479.0</u>

Mean actual sheer aft = Even
Mean standard sheer aft = Even

Mean actual sheer forward = Even
Mean standard sheer forward = Even

Length of enclosed superstructure forward of amidships = > 1L

„ „ aft of „ = > 1L

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{61.43}{18} \left(.75 - \frac{2314}{5186} \right) = -1.77$

If limited on account of midship superstructure. ✓

If limited to maximum allowance of $1\frac{1}{2}$ ins. per 100 ft. ✓

Deduction for Tropical Freeboard.	Deduction for Fresh Water.	TABULAR FREEBOARD corrected for Flush Deck (if required)
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line	Correction for coefficient $\frac{796.785 + 63}{1.36} = \frac{1465.1476}{1.36} = 1077.31$
Depth to Freeboard Deck = <u>28.54</u>	$\Delta =$	Depth Correction <u>11.96</u>
Summer freeboard = <u>5.23</u>	Tons per inch immersion at summer load water line	Deduction for superstructures <u>12.79</u>
Moulded draught (d) = <u>23.31</u>	T =	Sheer correction <u>1.77</u>
Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = <u>5.83</u>	Deduction = $\frac{\Delta}{40T}$ inches =	Round of Beam correction <u>0.02</u>
Addition for Winter North Atlantic Freeboard (if required) =		Correction for Thickness of Deck amidships <u>-</u>
		Other corrections, scantlings, etc. <u>-</u>
		Summer Freeboard = <u>62.66</u>

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, W, Steel, Deck:—

Existing freeboards as measured, being more than those computed under the Convention regulations	Tropical Fresh Water Line above Centre of Disc <u>11 3/4</u>	Tropical Fresh Water Freeboard <u>4-8 3/4</u>
	Fresh Water Line „ „ <u>6 3/4</u>	Fresh Water „ „ <u>4-8</u>
	Tropical Line „ „ <u>5</u>	Tropical „ „ <u>4-9 3/4</u>
	Winter Line below „ „ <u>5</u>	Winter „ „ <u>5-7 3/4</u>
	Winter North Atlantic Line „ „ <u>-</u>	Winter North Atlantic „ „ <u>-</u>

10m.231

17 DEC 1935


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PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS							SUPERSTRUCTURE DECK					
F98E B099B DECK							S0A9 STP4C7H9B DECK					
Description of Hatchway	N°1	N°2	N°3	N°4	N°5					N°3		
Dimensions of Hatchway	23'6"x 17'11"	29'9"x 17'11"	10'6"x 17'11"	29'9"x 17'11"	23'6"x 17'11"					10'6"x 17'11"		
COAMINGS { Height above Deck { Thickness { Sides { { Ends Stiffeners Brackets, Stays	39" .50" .40"	44½" .50" .40"	12" .40" .40"	36" .50" .40"	36" .50" .40"					30" .40" .40"		
	(SEE 3460N)	(SEE 3460N)	(SEE 3460N)	(SEE 3460N)	(SEE 3460N)					(SEE 3460N)		
HATCH BEAMS { Number { Spacing { Scantling and Sketch	4 5'-1"  PART 476445	5 4'-11½" 25'-34" 4'-3"-40"	1 5'-3" 22'-34" 4'-3"-40"	5 4'-11½" 25'-34" 4'-3"-40"	4 5'-1" 25'-34" 4'-3"-40"					1 5'-3" 25'-34" 4'-3"-40"		
Bearing Surface	3½"	3½"	3½"	3½"	3½"					3½"		
FORE AND AFTERS { Number { Spacing { Unsupported Lengths { Scantling* and Sketch	←	NONE				→				NONE		
	<i>Plates and BRACKETES AT PORT END + 2" rounded cleat</i>											
Bearing Surface	N°1 HATCH. STIFFENERS. PART SIDE 5'-3" CHANNEL. STAR. 4'-3" B.A. 21 FROM TOP. N°2 HATCH. STIFF. P.S. 9'-3" B.A. 24" FROM TOP. 2 BRACKETES AT AFT END. N°3 HATCH (ON BRIDGE DECK). PART SIDE 2 BRACKETES 20"-20". STAR. SIDE 2. 2 1/4 DIA STAYS. N°4 HATCH STIFF. P.S. 4'-3" B.A. STAR. 4'-3" CHANNEL. 18" FROM TOP. 2 R.A. 24" DITS. FUR. END.											
HATCH COVERS { Material { Thickness { How fitted { Bearing Surface	←	WOOD 2½" PAGE 8 ART 3"				→				←	WOOD 2½" PAGE 8 ART 3"	
Spacing of Cleats	24"	24"	24"	24"	24"					24"		
Number of Tarpsulins	2	2	1	2	2					2		

*Are wood fore and afters steel shod at all bearing surfaces? NONE FITTED YAS

Are battens and wedges efficient and in good condition? YAS

Are tarpaulins in good condition and in accordance with rule requirements? YAS

Are lashings provided in accordance with rule requirements? YAS

Particulars of fiddley, funnel and ventilator coamings :—

Any ice casing fitted with an efficient steel skylight.
 & body gratings fitted with efficient hinged steel storm covers.
 Tunnel casing 18" in height with efficient covr.
 Make every space ventilators of efficient construction passing inside of casing.

Particulars of Flush Bunker Scuttles:—

None.

Particulars of Companionways :—

None.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks :—

Particulars of Ventilators in exposed positions on freeboard and superstructure decks :-

On Forecastle (to see over relation) :- 4-9" dia. with 12" eavmngs. ✓

On Fore Deck (to hold) :- 2-24" dia. 1-18" dia. with 36" eavmngs.

On Bridge (to hold) :- 1-17" dia. with 24" eavmng.

On after Deck (to hold) :- 2-24" dia. 1-17" dia. with 36" eavmngs. (to tunnel) 1-9" dia. with 36" eavmng

all eavmngs riveted to the deck plating and provided with wood plugs and canvas covers.

Particulars of Air Pipes in exposed positions on freeboard, ~~raised quarter~~, or superstructure decks :—

one on forecath and one on poop, same neck type, cast iron. 5" dia. 10" to openings.
provided with canvas covers as temporary closing appliances. -
air pipes on well decks 2" dia. flush with deck and fitted with gunmetal
sewered covers. -

Particulars of Gangway Cargo and Coaling Ports:—

None.

Particulars of Scuppers and Sanitary Discharge Pipes —

Particulars of Scuppers and Sanitary Discharge Pipes —
 Sanitary discharge pipes and scuppers from partitions and bathrooms each fitted with one automatic gummited steam valve.
 On bridge space, one 2" dia. scupper each side, leading outboard with four brush, each furnished with a wood plug at inboard end, secured by a chain.
 No scuppers or board from spaces below the foreward deck.

Particulars of Side Scuttles :

In Overhaul:- 9" dia. In Prep:- 9" dia. in all immersion station, 7" dia. in store.
all fitted with gunmetal frames and hinged door lights.
No side scuttles below the foreward deck.

Particulars of Guard Rails :—

on Treadwell, Bridge, and Prop. I saw rails 38" in height.
Efficient tube works else where.

Particulars of Gangways, Lifelines, etc. :—

Efficient lifelines fitted when required.

Particulars of Freeing Arrangements.						
	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well	102' 0"	4' 2"	3.0' x 1.75'	4	21 ft	20.4 ft
Forward Well	89' 5"	4' 2"	3.0' x 1.75'	4	21 ft	17.85 ft

State position of each freeing port } After Well:—
(E, and A. position and height above deck edge) } Forward Well:—

State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:—

Additional area where sheer is less than standard.

Particulars of Superstructures, Trunks, Casings, Deckhouses.								
	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead	✓	32" $\left\{ \begin{array}{l} 5\frac{1}{2} \times 3 \times 35 \\ 4 \times 4 \times 40 \end{array} \right.$	24"	NONE	58" x 23"	19"	7' 0"	
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead	✓	32" $4 \times 4 \times 40 \times 5\frac{1}{2}$	29"	NONE	54" x 36"	18"	7' 0"	
Bridge, Forward Bulkhead	✓	35" $8 \times 3 \times 35 \times 3 \times 4$	30"	BOTH ENDS TOP AND BOTTOM	54" x 42"	18"	7' 0"	
Forecastle Bulkhead	✓	30" $4 \times 4 \times 40 \times 5\frac{1}{2}$	33"	NONE	BOTH ENDS 54" x 36" SILL 54" x 22"	21"	7' 0"	
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...								
Exposed Machinery Casings on Super-structure Decks	38"	32" $3\frac{1}{2} \times 3 \times 35$	40"	BOTH ENDS TOP	54" x 24"	19"	7' 0"	
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	38"	36" $5\frac{1}{2} \times 3 \times 35$	51"	NONE	54" x 24"	19"	7' 0"	
Deckhouses on Flush Deck Ships ...								

Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead	Hinged steel doors.	Can be operated from both sides.
Raised Quarter Deck Bulkhead ...		
Bridge, After Bulkhead	Stem boards in riveted channels full height of opening.	
Bridge, Forward Bulkhead	Hinged, stiffened steel doors with screw fastenings operated from outside only.	
Forecastle Bulkhead	When pass age at center.	
Exposed-Machinery Casings on Free-board or Raised Quarter Decks ...	$1\frac{1}{2}$ " hinged bulkhead doors at sides.	Can be operated from both sides.
Exposed Machinery Casings on Super-structure Decks	Hinged steel doors.	Can be operated from both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	Hinged steel doors.	Can be operated from both sides.
Deckhouses on Flush Deck Ships ...		

The image contains three hand-drawn technical diagrams of the USS Albatross (SS-218), a submarine. The top diagram is a side view of the hull, showing the internal layout of the double bottom tanks. The middle diagram is a plan view of the superstructure deck, showing the arrangement of the conning tower, accommodation, and other deck structures. The bottom diagram is a plan view of the freeboard deck, showing the arrangement of the main deck, engine room, and other deck structures. The diagrams are labeled with various compartments and dimensions.

Hull Diagram (Top): This diagram shows the side view of the hull with the following compartments and labels from bow to stern:

- AFTER PEAK TANK
- N° 4 HOLD
- N° 3 HOLD
- ENGINES AND BOILERS
- N° 2 HOLD
- N° 1 HOLD
- FORE PEAK TANK
- CHAIN LOCKER
- STAGE

A dashed line indicates the **DOUBLE BOTTOM TANKS** running along the length of the hull.

Superstructure Deck Diagram (Middle): This diagram shows the plan view of the superstructure deck with the following compartments and labels:

- HATCH TO STAGE
- SHEDDED 2 1/2"
- ACCOMMODATION
- ENGINE ROOM (ENG. CAS.)
- BOILER ROOM (BOILER CAS.)
- BUNGER HATCHES
- NO SWEATING
- SHEDDED 3"

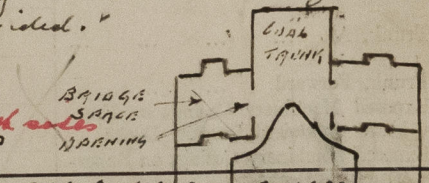
Freeboard Deck Diagram (Bottom): This diagram shows the plan view of the freeboard deck with the following compartments and labels:

- STAGE
- ACCOMMODATION
- N° 3
- N° 4
- ENGINE ROOM (ENG. CAS.)
- BOILER ROOM (BOILER CAS.)
- BUNGER HATCHES
- TRIMMING HATCH
- N° 2
- N° 1
- ACC.
- ACC.
- NO SWEATING
- NO SWEATING
- NO SWEATING

Dimensions: The bottom diagram includes the following dimensions in feet and inches:

- 29' 1 1/2"
- 102' 0"
- 50' 10 1/2"
- 53' 4 1/2"
- 89' 3"
- 37' 4 1/2"

Hatches on Foreboard Deck: - To Fore Peak (within open portion of forecabin): - 4'0" x 3'0" angle frame. $2\frac{1}{2}$ " wood covers. Cleats, battens and tarpaulins are arranged as usual. Harphard's Draining Hatches (within Bridge - one fore, one starboard): - 2'10" x 1'9" with 9" x 1" coverings fitted with $2\frac{1}{2}$ " wood covers on $2\frac{1}{2}$ " barning. Cleats, battens and tarpaulins. ✓
Bunker Hatches (within bridge - two each side): - Forward hatches 6'3" x 2'6". After hatches 10'6" x 2'6". with 10" bull angle coverings. Fitted with $2\frac{1}{2}$ " wood covers on $2\frac{1}{2}$ " barning and cleats, battens and tarpaulins. ✓
Hatches on Superstructure Decks: - Bunker Hatches (on Bridge Deck - two each side): - 6'3" x 2'6". Coverings 30" x 38". $2\frac{1}{2}$ " wood covers on $2\frac{1}{2}$ " barning. Cleats, battens and tarpaulins. ✓
Bunker Hatch (on top of machinery casing): - 17'0" x 4'0" 7" bull angle covering. $2\frac{1}{2}$ " wood covers on $2\frac{1}{2}$ " barning. Cleats, battens and tarpaulins.
Hatch on Poop (to store) 3'4" x 3'4". 9" bull angle covering. $2\frac{1}{2}$ " wood cover on $2\frac{1}{2}$ " barning. Cleats, battens and tarpaulins. ✓
An original cargo hatch on poop 7'6" x 6'0" is now permanently closed, 3" wood covers are fitted, bolted down and seams caulked. An efficient wood skylight 5'6" x 3'0" is fitted on this hatch, light and air to crew quarters. Canvas cover provided.
The coal bunkers in the machinery casing are arranged to feed the lower side bunkers with openings. To bridge space on each side 29" x 29" having 2" coverings. ~~capable of being opened both sides~~



Received by me

File $37' - 4\frac{1}{2}"$
 $4' - 3\frac{1}{2}"$

 $33' - 1"$