

Lloyd's Register of Shipping

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

 INDEX No. 43858
 (FOR LONDON OFFICE ONLY)

SHIP'S NAME HARIMA S. No. 479.	OFFICIAL NUMBER	NATIONALITY AND PORT OF REGISTRY JAPAN	GROSS TONNAGE ABOUT 13,300 tons	DATE OF BUILD	PORT OF SURVEY AIOI JAPAN
MOULDED DIMENSIONS: LENGTH 547.91 BREADTH 73.16 DEPTH 40.35				DATE OF SURVEY	
MOULDED DISPLACEMENT AT MOULDED DRAUGHT = 85 PER CENT OF MOULDED DEPTH 30,206 tons (tons @ 2240 lbs)				SURVEYOR'S SIGNATURE	
COEFFICIENT OF FINENESS FOR USE WITH TABLES 0.769				PARTICULARS OF CLASSIFICATION	

DEPTH FOR FREEBOARD (D)	DEPTH CORRECTION	ROUND OF BEAM CORRECTION
MOULDED DEPTH 40.35	(a) WHERE D IS GREATER THAN TABLE DEPTH (D - TABLE DEPTH) R = $(40.44 - 36.58) \times 3$ = 11.73	MOULDED BREADTH (B) 73.16
STRINGER PLATE 0.09	(b) WHERE D IS LESS THAN TABLE DEPTH (IF ALLOWED) (TABLE DEPTH - D) R =	STANDARD ROUND OF BEAM = $\frac{B \times 12}{50} = 17.56$
SHEATHING ON EXPOSED DECK $T \left(\frac{L-S}{L} \right) =$	IF RESTRICTED BY SUPERSTRUCTURES	SHIP'S ROUND OF BEAM = 17.72
DEPTH FOR FREEBOARD (D) = 40.44		DIFFERENCE - 0.16
		RESTRICTED TO
		CORRECTION = $\frac{\text{DIFF}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{-0.16}{4} \times 0.5442 = -0.02$

DEDUCTION FOR SUPERSTRUCTURES.

	MEAN COVERED LENGTH(S)	EQUIVALENT ENCLOSED LENGTH(S)	HEIGHT	HEIGHT CORRECTION	EFFECTIVE LENGTH(E)
POOP ENCLOSED	125.96	125.96	8.04		125.96
" OVERHANG					
R.Q.D. ENCLOSED					
" OVERHANG					
BRIDGE ENCLOSED 45.30	48.62	48.62	7.71		48.62
" OVERHANG AFT					
" OVERHANG FORWARD					
F.C.L. ENCLOSED	75.13	75.13	7.58		75.13
" OVERHANG					
TRUNK AFT					
" FORWARD					
TONNAGE OPENING AFT					
" FORWARD					
TOTAL	249.71	249.71			249.71

STANDARD HEIGHT OF SUPERSTRUCTURE	7.50
" " R.Q.D.	
DEDUCTION FOR COMPLETE SUPERSTRUCTURE	42.00
PERCENTAGE COVERED $\frac{S}{L} =$	0.4558
" " $\frac{S_1}{L} =$	0.4558
" " $\frac{E}{L} =$	0.4558

PERCENTAGE FROM TABLE, LINE A (CORRECTED FOR ABSENCE OF FORECASTLE (IF REQUIRED))	} Tanker 0.3658
PERCENTAGE FROM TABLE, LINE B (CORRECTED FOR ABSENCE OF FORECASTLE (IF REQUIRED))	
INTERPOLATION FOR BRIDGE LESS THAN .2L (IF REQUIRED)	
DEDUCTION = $42.00 \times 0.3658 =$	15.36

SHEER CORRECTION.

STATION	STANDARD ORDNATE	S	PRODUCT	ACTUAL ORDNATE	EFFECTIVE ORDNATE	S	PRODUCT
A.P.	64.79	1	64.79	39.37	39.37	1	39.37
1/8 L FROM A.P.	28.83	4	115.32	11.26	11.26	4	45.04
3/8 L "	7.13	2	14.26	0.16	0.16	2	0.32
AMIDSHIPS	0	4	0	0	0	4	0
3/8 L FROM F.P.	14.25	2	28.50	0.55	0.55	2	1.10
1/8 L "	57.66	4	230.64	19.06	19.06	4	76.24
F.P.	129.58	1	129.58	78.74	78.74	1	78.74
TOTAL			583.09				240.81

$$\frac{\text{MEAN ACTUAL SHEER AFT}}{\text{MEAN STANDARD SHEER AFT}} =$$

$$\frac{\text{MEAN ACTUAL SHEER FORWARD}}{\text{MEAN STANDARD SHEER FORWARD}} =$$

$$\frac{\text{LENGTH OF ENCLOSED SUPERSTRUCTURE FORWARD OF AMIDSHIPS}}{L} =$$

$$\text{Sheer Correction with correction of excess height of poop:}$$

$$\left\{ -\frac{0.69}{3} \times \frac{125.96}{547.91} + \frac{342.28}{18} \right\} \times (0.75 - 0.2275) = 9.91$$

$$\text{CORRECTION} = \frac{\text{DIFFERENCE BETWEEN SUMS OF PRODUCTS}}{18} = \frac{342.28}{18} = 19.02$$

IF LIMITED ON ACCOUNT OF MIDSHIP SUPERSTRUCTURE

52.1 IF LIMITED TO MAXIMUM ALLOWANCE OF 1 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 $\frac{0.68 + 0.769}{1.36} = 1.065$
DEPTH TO FREEBOARD DECK = 40.44 FT.	$\Delta = 28,902$ tons (mld)	
SUMMER FREEBOARD = 9.23	TONS PER INCH IMMERSION AT SUMMER LOAD WATER LINE	DEPTH CORRECTION 11.73
MOULDED DRAUGHT (d) = 31.21 (9' 5 1/3")	T = 81.04 tons (mld)	DEDUCTION FOR SUPERSTRUCTURES 15.36
DEDUCTION FOR TROPICAL FREEBOARD AND ADDITION	DEDUCTION = $\frac{\Delta}{40T}$ INCHES	SHEER CORRECTION 9.91
FOR WINTER FREEBOARD = $\frac{d}{4}$ INCHES = 7.80	= 8.92	ROUND OF BEAM CORRECTION 0.02
ADDITION FOR WINTER NORTH ATLANTIC FREEBOARD (IF REQUIRED) = 7.80 + 5.48 = 13.28		CORRECTION FOR THICKNESS OF DECK AMIDSHIPS 0
		OTHER CORRECTIONS, SCANTLINGS, ETC. 0
		21.64 15.38 + 6.26 8
		SUMMER FREEBOARD = 110.88 (= 9.23)

SUMMER FREEBOARD AMIDSHIPS FROM CENTRE OF DISC TO TOP OF DECK LINE, WOOD, STEEL, DECK:-

 TROPICAL FRESH WATER LINE ABOVE CENTRE OF DISC
 FRESH WATER LINE
 TROPICAL LINE
 WINTER LINE BELOW
 WINTER NORTH ATLANTIC LINE

 TROPICAL FRESH WATER FREEBOARD
 FRESH WATER
 TROPICAL
 WINTER
 WINTER NORTH ATLANTIC


© 2021

Lloyd's Register Foundation

013639-013642-225