

MIDSHIP SECTION

S.S. "HARCALO"

SCALE $\frac{1}{2}$ " = ONE FOOT.

TO CLASS 100 A.1. AT LLOYDS SPECIAL SURVEY.

DIMENSIONS:- 415'-0" B.P. x 56'-3" EXT. x 56'-0" MLD. x 27'-3" MLD. TO UPPER DK.



LLOYDS' NUMERALS		
FIRST LONGITUDINAL NUMBER L = D = 415.0 x 27.25	=	11308.75
SECOND LONGITUDINAL NUMBER L = (B + D) = 415.0 x (56.0 + 27.25)	=	34548.75
PROPORTION 1/2 TO UPPER DECK = 415.0 x 27.25	=	15.23
PROPORTION 1/2 TO BRIDGE DECK = 415.0 x 36.75	=	11.29
D = MOULDED DEPTH	=	27.25
d = 27.25 - (3.23 + 33 EXTRA HEIGHT WING BKT)	=	23.02
ERECTOR'S	=	84.30%

EQUIPMENT NUMBER		
SECOND LONGITUDINAL NUMBER L = (B + D) = 34548.75		
POOP 38.83 x 8.5 = $\frac{3}{4}$	=	247.54
BRIDGE 276.04 x 9.5 = $\frac{3}{4}$	=	1966.78
FORECASTLE 36.00 x 8.5 = $\frac{3}{4}$	=	229.20
SIDEHOUSES & CASING 67.0 x 8.0 x $\frac{1}{2}$	=	268.00
SALOON HOUSE 22.5 x 8.0 x $\frac{1}{2}$	=	118.00
CAPTAIN'S HOUSE 24.0 x 8.0 x $\frac{1}{2}$	=	96.00
HOUSE ON POOP DECK 32.0 x 7.5 x $\frac{1}{2}$	=	120.00
EQUIPMENT NUMBER	=	37594.57

EQUIPMENT		
2 BOWER ANCHORS 63 3/4 CWT'S EACH STOCKLESS		
1 BOWER ANCHOR 54 1/2 CWT'S STOCKLESS		
1 STREAM ANCHOR 17 1/2 CWT'S EX- STOCK		
279 FATHOMS 2 7/8 STD CHAIN CABLE 682 1/4 CWT'S		
20 FATHOMS 1 1/16 STREAM CHAIN OR 4 3/4 FLEX STEEL WIRE 6-12		
120 FATHOMS 5 FLEX STEEL WIRE 6-12		
2 HAWPERS 20 FATHOMS 8 HEMP OR 2 1/4 FLEX STEEL WIRE 6-12		
2 WARPS 20 FATHOMS 7 HEMP OR 2 1/2 FLEX STEEL WIRE 6-12		

RIVETING NOTE

RIVETS IN FRAMES TO FLOORS AND CROSS-PLATES IN AFT PEAK SPACED 5 DIAM. APART C² TO C³.

RIVETS IN FRAMES TO SHELL AT FLAT OF DOUBLE BOTTOM FORWARD HALF LENGTH FORWARD SPACED 5 1/2 DIAM. (TWO COMPLETE ROWS).

RIVETS IN FRAMES TO FLOORS AT FLAT OF DOUBLE BOTTOM FORWARD HALF LENGTH FORWARD SPACED 6 1/4 DIAM. (TWO COMPLETE ROWS).

RIVETS IN SIDE FRAMES TO SHELL SPACED 7 DIAM. APART, 5 1/2 DIAM. APART IN WAY OF FORE AND AFT PEAK TANKS AND DEEP FRAMING FORWARD.

RIVETS IN BOTTOM FRAMES TO SHELL AFT HALF LENGTH FORWARD SPACED 7 DIAM. C² TO C³.

RIVETS IN 3 R. BUTTS OF OUTSIDE PLATING AND OF DECK STRINGER PLATES SPACED 3 1/2 DIAM. APART C² TO C³.

RIVETS IN 4 R. BUTTS OF OUTSIDE PLATING AND OF DECK STRINGER PLATES SPACED 4 DIAM. APART C² TO C³.

RIVETS IN BEAMS OF SHELL PLATING, DECK PLATING AND INNER BOTTOM PLATING AS PER TABLE 40.

RIVETS IN BUTTS OF DECK PLATING, INNER BOTTOM AND MARGIN PLATING SPACED 4 DIAM. APART C² TO C³.

RIVETS IN BEAMS AND BUTTS OF BULKHEAD AND TUNNEL PLATING, MARGIN ANGLES AND WEATHER DECK STRINGER ANGLES, AND BULKHEAD FRAME TO BULKHEAD SPACED 4 1/2 DIAM. APART C² TO C³.

RIVETS IN FLAT KEEL ANGLES, VERTICAL ANGLES CONNECTING FLOORS TO CENTRE GIRDER, AND SHELL FLANGE OF WATERTIGHT BULKHEAD FRAME SPACED 5 DIAM. APART C² TO C³.

RIVETS IN FRAMES TO FLOORS AFT HALF LENGTH FORWARD, REVERSE FRAMES TO FLOORS AND INNER BOTTOM PLATING, VERTICAL ANGLES TO FLOORS AND SIDE GIRDERS, IN BULKHEAD STIFFENERS (EXCEPT PEAK BULKHEADS) AND IN DECK PLATING TO BEAMS ON EVERY FRAME SPACED 7 DIAM. APART C² TO C³.

RIVETS IN SHELL CONNECTING ANGLES 5 IN EACH 28" SPACE AND 4 IN EACH 24" SPACE.

RIVETS IN CENTRE GIRDER TOP ANGLES 7 DIAM. APART C² TO C³ NOW WATERTIGHT.

RIVETS IN CENTRE GIRDER TOP ANGLES 5 DIAM. APART C² TO C³ WATERTIGHT.

SCANTLINGS AND DETAILS OF CONSTRUCTION NOTED HEREON ARE SUBMITTED ON THE UNDERSTANDING THAT THEY ARE THE MINIMUM WHICH WILL BE ACCEPTED FOR CLASS ERRORS AND OMISSIONS EXCEPTED.

SIDE FRAMING

FRAMES SPACED 26" APART 24" IN FORE AND AFT PEAKS.

MAIN SIDE FRAMES CLEAR OF DEEP FRAMING, TUNNEL RECESS & FORE & AFT PEAK TANKS 11 1/2 x 3 1/2 = 48 B.A. N.B.S. ALL TO UPPER DECK.

FRAMES IN ENGINE AND BOILER ROOM TO BE INCREASED .04 IN LIEU OF WEB FRAME (TO BE OMITTED IF BUNKER BULKHEAD FITTED).

FRAMES IN BOILER ROOM AND PERMANENT BUNKERS (HOLD & TUN. DKS.) TO BE INCREASED .06.

MAIN SIDE FRAMES IN WAY OF TUNNEL RECESS 2 1/2 x 3 1/2 = 44 B.A. N.B.S. ALL TO UPPER DECK.

MAIN SIDE FRAMES IN WAY OF DEEP FRAMING FORWARD = 10" AFT RULE POSITION OF COLLISION BULKHEAD (SEE PROFILE & DECK PLAN) 12 x 4 x 4 = 44 " WITH 5 x 4 x 46 REVERSE BAR ALL TO UPPER DECK.

PEAK FRAMES 7 x 3 1/2 x 41 B.A. N.B.S. 3 1/2 FOR 7/8 RIVETS.

BRIDGE TWEEN DECK FRAMES 5 1/2 x 3 1/2 = 34 B.A. O.B.S. FITTED ON EVERY FRAME AND SCARPHED TO MAIN FRAMES AT UPPER DECK FITTED 6 x 3 1/2 = 30 B.A. N.B.S.

POOP TWEEN DECK FRAMES 6 1/2 x 3 = 42 B.A. O.B.S. ON ALTERNATE FRAMES SCARPHED TO MAIN FRAMES AT UPPER DECK WITH 4 1/2 x 3 = 38 O.A. INTERMEDIATE HANGING FRAMES.

FORECASTLE TWEEN DECK FRAMES 6 1/2 x 3 = 42 B.A. O.B.S. ON ALTERNATE FRAMES WITH 5 x 3 = 38 O.A. INTERMEDIATE FRAMES BOTH SCARPHED OR BRACKETED AT UPPER DECK.

STEM:- 9 1/2 x 2 1/2
STERNPOST:- 10 1/4 x 7 3/8
RUBBERPOST:- 10 1/4 x 7 3/8

ADDITIONAL SIDE GIRDERS IN WAY OF ENGINE & THRUST SEATING.

CENTRE GIRDER

TO RULE 4 1/2 x .51 FOR 1/2 LEN. Q. 41 AT ENDS.

FITTED 46 x 46 FOR 1/2 LEN. Q. 30 AT ENDS.

.59 IN BOILER SPACE BUTTS LAPPED 5 3 R.

VERTICAL ANGLES 3 x 3 x 40 SINGLE .50 IN B.S.

5 x 5 x 40 SINGLE UNDER ENGINE SPACE & THRUST SEATING 5 x 5 = 50 UNDER BOILER BEARERS.

INNER BOTTOM PLATING .41 FOR 1/2 LEN. Q. TO .36 AT ENDS.

.49 IN ENGINE SPACE .50 IN BOILER SPACE BUTTS LAPPED 5 3 R. TO 1 R. AT ENDS SEAMS 1 R.

SEAMS 1 R. IN ENGINE SPACE BUTTS LAPPED 5 2 R. IN E.S.

FITTED .59 E.S. .67 B.S. (OWNERS).

TANK TOP CENTRE STRAKE TO RULE 49 1/2 x 49 FOR 1/2 LEN. Q.

TO .40 AT ENDS .49 IN ENGINE SPACE .56 IN BOILER SPACE.

FITTED 78 x 46 FOR 1/2 LEN. Q. TO 30 AT ENDS.

.49 IN E.S. .50 IN B.S. BUTTS LAPPED 5 3 R. TO 2 R. AT ENDS.

FITTED .59 IN E.S. .67 IN B.S. (OWNERS).

TOP ANGLE 3 x 3 x 50 FOR 1/2 LEN. Q.

TO .40 AT ENDS .50 IN B.S.

3 1/2 FL. WHERE 7/8 RIVETS

3 x 3 x 40

DOUBLE BOTTOM ARRANGED FOR CARRYING OF OIL FUEL IF NECESSARY.

FLOOR PLATES .38 THROUGHOUT IN HOLDS AND ENGINE SPACE .48 IN BOILER SPACE.

WATERTIGHT FLOORS 38 x .08 = .48 WITH STIFFENERS 5 1/2 x 3 = .38 ANGLE SPACED 30" APART FOR OVERFLOW.

34" Q. ABOVE TANK TOP.

WING BRACKETS .45 IN HOLDS .55 IN BOILER SPACE.

MARGIN CONNECTION 5 x 5 = 45 SINGLE .55 IN BOILER SPACE.

WITH 11 x 7/8 RIVETS EACH FLANGE 12 x 7/8 RIV. FOR 1/4 LEN. R.

IN WAY OF DEEP FRAMING 6 x 6 = 45 SINGLE WITH 16 x 7/8 RIVETS EACH FLANGE.

48 IN B.R.

38 CONT. GUSSET PLATE ON EVERY FRAME WITH 5 x 7/8 RIVETS.

8 x 7/8 RIVETS IN WAY OF DEEP FRAMING.

POOP DECK STRINGER PLATE 35 x 35

BUTTS LAPPED 5 1 R.

STRINGER ANGLE 3 1/2 x 3 1/2 = 35

DECK PLATING .28 SHEATHED .130 UNSHEATHED

BUTTS LAPPED 5 1 R.

BEAMS ON EVERY FRAME AS PER PROFILE & DECK PLAN.

L IN

TO RULE BRIDGE 82 FITTED .60 IN VIEW OF SIDE FRAMES ON EVERY FRAME.

POOP .38 FORECASTLE .41

BUTTS LAPPED 5 3 R. AT BRIDGE.

BUTTS LAPPED 5 1 R. AT POOP & FORECASTLE.

K OUT

TO RULE BRIDGE 82 FITTED .60

POOP .38 FORECASTLE .41

BUTTS LAPPED 5 3 R. AT BRIDGE.

BUTTS LAPPED 5 1 R. AT POOP & F.C.L.E.

J IN

50 x 1 1/4 TO RULE FITTED 77 x 1 1/4 FOR 1/2 LEN. Q. + 50% AT BREAKS.

TO .44 AT ENDS .58 IN WAY OF BRIDGE.

BUTTS LAPPED 5 5 R. FOR 1/2 LEN. 4 R. TO 3 R. AT ENDS 3 R. IN BRIDGE.

FOR THIS STRAKE CLEAR OF BRIDGE SPECIAL PLAN TO BE SUBMITTED.

H OUT

50 x .87 TO RULE FITTED 77 x .77 FOR 1/2 LEN. Q.

TO .44 AT ENDS .58 IN WAY OF BRIDGE.

BUTTS LAPPED 5 4 R. FOR 1/2 LEN. TO 3 R. AT ENDS.

3 R. IN BRIDGE.

FOR THIS STRAKE CLEAR OF BRIDGE SPECIAL PLAN TO BE SUBMITTED.

G IN

77 x .59 FOR 1/2 LEN. Q.

TO .44 AT ENDS.

BUTTS LAPPED 5 3 R.

F OUT

77 x .58 FOR 1/2 LEN. Q.

TO .46 AT ENDS.

BUTTS LAPPED 5 3 R.

E IN

80 x .59 FOR 1/2 LEN. Q.

TO .46 AT ENDS.

BUTTS LAPPED 5 3 R.

MARGIN PLATE TO RULE 35 x .49 = .58 IN B.S.

FITTED ABOUT 44 x .49 = .69 IN B.S. .59 IN E.S. (OWNERS).

BUTTS LAPPED 5 3 R. THROUGHOUT.

BULGE KEEL 6 x 4 = 50 TEE BAR WITH 12 x .44 BULB PLATE FOR ABOUT 120-0 AMIDSHIPS.

SPECIAL PLAN OF BOTTOM STRENGTHENING FORWARD TO BE SUBMITTED LATER.

DISPOSITION OF FLOORS

SOLID FLOORS ON EVERY FRAME IN ENGINE SPACE AND FORWARD 75 LEN. FORWARD UNDER BOILER BEARERS & BULKHEADS.

PARTIAL SOLID UNDER THRUST ELSEWHERE SOLID FLOORS ON EVERY SECOND FRAME BRACKET FLOORS INTERMEDIATE.

KEEL OUT

49 x .75 FOR 1/2 LEN. Q. TO .60 AT ENDS BUTTS LAPPED 5 4 R. TO 3 R. AT ENDS.

A IN

79 x .59 FOR 1/2 LEN. Q.

TO .46 AT ENDS.

BUTTS LAPPED 5 3 R.

B OUT

69 x .59 FOR 1/2 LEN. Q.

TO .46 AT ENDS.

BUTTS LAPPED 5 3 R.

C IN

69 x .59 FOR 1/2 LEN. Q.

TO .46 AT ENDS.

BUTTS LAPPED 5 3 R.

D OUT

69 x .59 FOR 1/2 LEN. Q.

TO .46 AT ENDS.

BUTTS LAPPED 5 3 R.

THICKNESS OF BOTTOM SHELL PLATING FROM FORWARD HALF LENGTH FORWARD TO RULE POSITION OF COLLISION BULKHEAD .59 + 0% = .65.



W405-0031

LITHGOWS LTD.

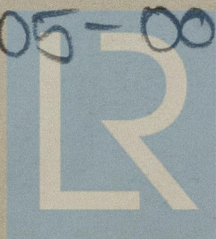
Nº 863. "HARCAHO"

MIDSHIP SECTION.
(AS BUILT).

Eng. Report Nº 19662.

RETAIN

W405-0031 © 2019



Lloyd's Register
Foundation