

No.

THE BRITISH CORPORATION FOR THE SURVEY

AND

REGISTRY OF SHIPPING.



Report No. 1592 No. in Register Book 2229

Received at Head Office 25th October 1922

NEW YORK.

Surveyor's Report on the New Engines, Boilers, and Auxiliary Machinery of the ^{Single Triple} ~~Twin~~ ^{Quadruple} ~~Double~~ Screw TURBINE STEAMER

— "TUSCANIA" —

Official No. Port of Registry GLASGOW.

Registered Owners THE ANCHOR LINE [HENDERSON BROS.] LTD.

Engines Built by THE FAIRFIELD S. & E. @ LTD.

at GOVAN, GLASGOW.

Main Boilers Built by THE FAIRFIELD S. & E. @ LTD.

at GOVAN, GLASGOW.

Donkey " " NONE

at 11-9-22

Date of Completion

First Visit 2-6-19 Last Visit 11-9-22 Total Visits 250

" " 12-12-22 " " 20-3-23 " " 25

NOTES IN RED REFER TO ALTERATIONS CARRIED OUT.

RECIPROCATING ENGINES.

Works No.

No. of Sets

Description

No. of Cylinders each Engine

No. of Cranks

Diars. of Cylinders

Stroke

Cubic feet in each L.P. Cylinder

Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr.?

" " " each Receiver?

Type of H.P. Valves,

" 1st I.P. "

" 2nd I.P. "

" L.P. "

" Valve Gear

" Condenser &

BUILT Cooling Surface 6700 sq. ft. ea.

Screwed part (bottom of thread)

Diameter of Piston Rods (plain part)

Material

Diar. of Connecting Rods (smallest part)

Material

" Crosshead Gudgeons

Length of Bearing

Material

No. of Crosshead Bolts (each)

Diar. over Thrd.

Thrds. per inch

Material

" Crank Pin " "

" Main Bearings

Lengths

" Bolts in each

Diar. over Thread

Threads per inch

Material

" Holding Down Bolts, each Engine SEE P. 3 Diar.

No. of Metal Chocks

Are the Engines bolted to the Tank Top or to a Built Seat?

Are the Bolts tapped through the Tank Top and fitted with Nuts Inside?

If not, how are they fitted?

BOLTED TO STOOLS BUILT
FROM TANK TOP

Connecting Rods, Forged by

Piston

Crossheads,

Connecting Rods, Finished by

Piston

Crossheads,

Date of Harbour Trial

4-9-22

" Trial Trip

7-9-22 & 8-9-22

Trials run at

FIRTH OF CLYDE

Were the Engines tested to full power under Sea-going conditions?

NO

If so, what was the L.H.P.?

Revs. per min.

Pressure in 1st I.P. Receiver,

lbs., 2nd I.P.,

lbs., L.P.,

lbs., Vacuum,

ins.

Speed on Trial,

If the Conditions on Trial were such that full power records were not obtained give the following estimated

data:—

Builders' estimated L.H.P.

Revs. per min.

Estimated Speed

17 KNOTS @ 13,500 S.H.P. & 93 R.P.M.

RAN AT VARIOUS SPEEDS DURING TRIALS FROM

3 1/2 KNOTS UP TO 15 1/2 KNOTS

THRUST BLOCK. 40 H.D. BOLTS, 1 5/8" DIA.

H.P. CASING 6 " 1 1/4" "

I.P. DE 16 " 1 1/4" "

L.P. DE 8 " 1 1/2" "

" 8 " 1 3/4" "

2020
Lloyd's Register
Foundation

TURBINE ENGINES.

Works No. 595 Type of Turbines BROWN-CURTIS
 No. of H.P. Turbines No. of I.P. No. of L.P. No. of Astern

ONE EACH ENGINE. ONE EACH ENGINE. ONE EACH ENGINE. TEACH I.P. & L.P.

Are the Propeller Shafts driven direct by the Turbines or through Gearing? THROUGH GEARING

Is Single or Double Reduction Gear employed? DOUBLE

H.P. & I.P. L.P.
 Diar. of 1st Reduction Pinion 10.4979 .162824 } Width 26" Pitch of Teeth .673064"
 " 1st " Wheel 77.7702"

Estimated Pressure per lineal inch @ $\frac{12500 \text{ S.H.P.}}{90 \text{ R.P.M.}} = 525 \text{ Lbs.}$

H.P. & I.P. L.P.
 Diar. of 2nd Reduction Pinion 29.994" } Width 60" Pitch of Teeth .673064"
 " 2nd " Wheel 123.618"

Estimated Pressure per lineal inch 590 Lbs.

Revs. per min. of H.P. Turbines at Full Power 2750 S.H.P. 1562.5 2nd H.P. TURBINE

" " I.P. " " 2750 " 1562.5 " I.P. "

" " L.P. " " 1770 " 3125 " L.P. "

" " 1st Reduction Shaft 371 " 6250 " SET

" " 2nd " " 90

" " Propeller Shaft 90

Total Shaft Horse Power 12,500 NORMAL 13,500 MAXIMUM

Date of Harbour Trial 4-9-22

" Trial Trip 7-9-22 & 8-9-22.

Trials run at FIRTH OF CLYDE

Speed on Trial 15.73 Knots. Propeller Revs. per min. 83.5 S.H.P. 9480

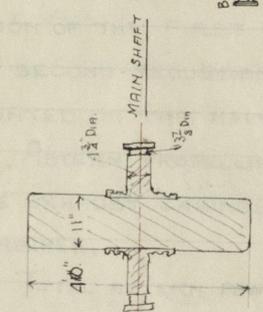
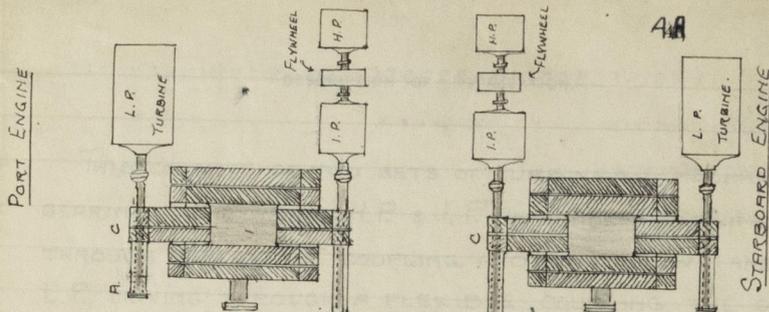
Turbine Spindles forged by CAMMELL, LAIRD & G. & FAIRFIELD S. & E. G. L^{ts}

" Wheels forged or cast by Do.

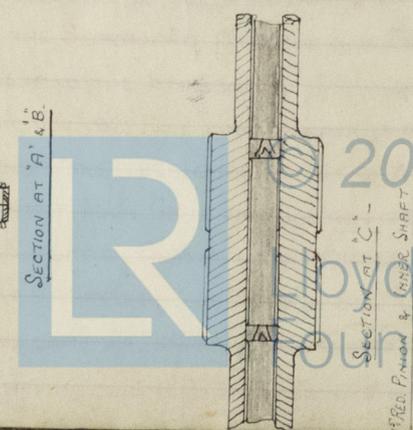
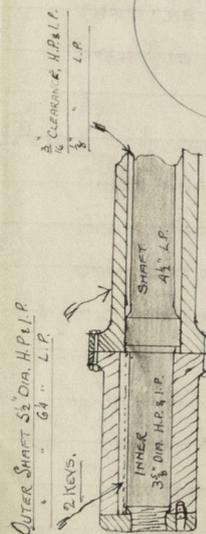
Reduction Gear Shafts forged by CAMMELL, LAIRD & G. L^{ts}

" Wheels forged or cast by A. F. CRAIG & C.

MODAL DRIVE SHAFTING BY THE FAIRFIELD C. FLYWHEELS BY McNEILS FORGE.
 NEW PINIONS, SLEEVES & 2 GEAR WHEEL RIMS BY THE DARLINGTON FORGE, L^{ts}



ARRANGEMENT OF
 MODAL DRIVE
 S.S. TURBINES - No 595



CAL
 ONE
 THER
 OUGH
 IN
 D IN
 R
 SO
 E
 RED
 RT MAIN
 WERE
 CO
 S
 S
 FITTING

Wo

No.

ONE

Are

Is S

Dias

Esti

Dias

Esti

Rev

hol

Tota

Dat

Tria

Spee

Tur

Red

Noi

Rev

DESCRIPTION OF INSTALLATION.

THIS CONSISTS OF TWO SETS OF TURBINES & MECHANICAL GEARING, ONE AHEAD H.P. & L.P. IN TANDEM, DRIVING THROUGH A FLEXIBLE COUPLING AND ONE PINION, AND ONE L.P. DRIVING THROUGH A FLEXIBLE COUPLING THE OTHER PINION OF THE FIRST REDUCTION GEARING, AND THROUGH THE SECOND REDUCTION PINIONS TO THE GEAR WHEEL MOUNTED ON THE MAIN SHAFT.

ASTERN PROPELLING TURBINES ARE INCORPORATED IN THE EXHAUST CASINGS OF THE H.P. AND L.P. AHEAD TURBINES.

TOTAL ASTERN POWER = 70% OF THE AHEAD POWER STEAM TO BE SUPERHEATED TO 200° F. AT H.P. TURBINE INLET. PROVISION IS MADE ON THE H.P. TURBINES BY THE FITTING OF AN ADDITIONAL NOZZLE, SO THAT THE S.H.P. MAY BE INCREASED TO 13,500. IF THE STEAM IS AVAILABLE.

NOTE:- IN CONSEQUENCE OF TEETH BREAKING IN THE PORT 2ND RED^U PINION AND THE STARBOARD 1ST REDUCTION PINION, THE PORT MAIN GEAR WHEEL AND THE STARBOARD 1ST REDUCTION WHEEL WERE DAMAGED IN NOV. 1922. THE FOLLOWING REPAIRS AND ALTERATIONS WERE THEN CARRIED OUT BY THE FAIRFIELD CO. ONE NEW PORT MAIN GEAR WHEEL WAS FITTED ALL 2ND REDUCTION PINIONS WERE TURNED DOWN SLEEVES SHRUNK ON & PINNED AND NEW TEETH CUT. THE MODAL DRIVE WAS FITTED. (SEE SKETCH, FAR) THIS INVOLVED MOVING THE H.P. TURBINES 3'-0" FORWARD, THE FITTING

TURBO-ELECTRIC PROPELLING MACHINERY.

No. of Turbo-Generating Sets Capacity of each

Type of Turbines employed

Description of Generators

No. of Motors driving Propeller Shafting

Are the Propeller Shafts driven direct by the Motors or through Gearing?

Is Single or Double Reduction Gear employed?

Description of Motors

Diam. of 1st Reduction Pinion }
 " 1st " Wheel } Width Pitch of Teeth

Estimated Pressure per lineal inch

Diam. of 2nd Reduction Pinion }
 " 2nd " Wheel } Width Pitch of Teeth

Estimated Pressure per lineal inch

Revs. per min. of Generators at Full Power

" Motors "

" 1st Reduction Shaft

" 2nd "

" Propellers at Full Power

Total Shaft Horse Power

Date of Harbour Trial

" Trial Trip

Trials run at

Speed on Trial Knots. Propeller Revols. per min. S.H.P.

Makers of Turbines

Generators

Motors

Reduction Gear

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

DESCRIPTION OF INSTALLATION. CONTD.

OF A FLYWHEEL BETWEEN EACH H.R. & I.P. TURBINE, FITTING EXTENSION SPINDLES & 1ST REDUCTION PINIONS, ALTERING THE EXISTING LINE OF STEAM PIPES AT THE TURBINES, BORING OUT THE 2ND REDUCTION PINIONS, EXTENDING THE SEATINGS, ETC.

TRIALS WERE RUN ON THE FATH OF CLYDE ON THE 16TH & 17TH MARCH, 1923. WHEN THE MACHINERY WORKED SATISFACTORILY. THE FOLLOWING ARE THE PARTICULARS:-

STEAM:- B.R. ER. H.P. CONTROL. H.P. 1ST STAGE. M.P. REC. L.P. REC.

220	214	186	160	89	15.7
-----	-----	-----	-----	----	------

VACUUM 28.5" SUPERHEAT 184°F REVS. 90.4. H.P. 12630.

P.L.O.



© 2020

Lloyd's Register Foundation

BOILERS.

Works No. 595

No. of Boilers 6 Type CYLINDRICAL, MULTITUBULAR

Single or Double-ended 3 SINGLE ENDED. 3 DOUBLE ENDED

No. of Furnaces in each A EACH SINGLE ENDED 8 EACH DOUBLE ENDED

Type of Furnaces MORISON SUSPENSION

Date when Plan approved 10/9/19

Approved Working Pressure 220 LBS.

Hydraulic Test Pressure 385 "

Date of Hydraulic Test SEE P. 15.

" when Safety Valves set 5-9-22

Pressure at which Valves were set 225 LBS.

Date of Accumulation Test 6-9-22

Maximum Pressure under Accumulation Test 240 LBS.

System of Draught CLOSED ASHPIT (HOWDEN) COAL OR OIL.

Can Boilers be worked separately? YES

Makers of Plates D. COLVILLE & SONS, LTD
C.C. WRAPPER PLATES BY J. SPENCE & SONS.

" Stay Bars The Steel Co. of Scotland, Ltd. & Scottish S. S. Co., Ltd.

" Rivets THE RIVET, BOLT & NUT CO

" Furnaces THE LEEDS FORGE CO. LTD

Greatest Internal Diar. of Boilers 17'-6"

" " Length " 11'-6" SINGLE ENDED. 22'-6" DOUBLE ENDED

Square Feet of Heating Surface each Boiler 3342 # S.E. 6684 # " "

" " Grate " 82'94 " " 165'88 " "

No. of Safety Valves each Boiler 1 DBL. SING. EN. 3 1/2" SING. EN.
1 TR. DBL. " Rule Diar. Actual 4" DBL. "

Are the Safety Valves fitted with Easing Gear? YES

No. of Pressure Gauges, each Boiler ONE ON S.E. 2 EACH SING. EN.
ONE EACH END ON D.E. No. of Water Gauges 4 " DBL. "

" Test Cocks " NONE " Salinometer Cocks ONE

— TEST MARKS ON BOILERS. —

DOUBLE ENDED BOILERS

PORT	CENTRE	STARBOARD
B.C. TEST No 3868 385 Lbs. W.P. 220 " G. S. M. 23/12/20	B.C. TEST No 3881 385 Lbs. W.P. 220 " G. S. M. 11/2/21	B.C. TEST No 3885 385 Lbs. W.P. 220 " G. S. M. 25/2/21

SINGLE ENDED BOILERS

PORT	CENTRE	STARBOARD
B.C. TEST No 3887 385 Lbs. W.P. 220 " G. S. M. 4/3/21	B.C. TEST No 3889 385 Lbs. W.P. 220 " G. S. M. 10/3/21	B.C. TEST No 3892 385 Lbs. W.P. 220 " G. S. M. 18/3/21

HEATING SURFACE (OIL FUEL)

3611 # SING. EN. 7222 # DBL. EN.

OIL FUEL SUCTION & FILLING SYSTEM TESTED TO 25 LBS., 14-8-22
" " DISCHARGE " " 400 " 15-8-22Lloyd's Register
Foundation

NO. 14

NO. 15

NO. 16

NO. 17

NO. 18

		SINGLE END.	DOUBLE END.
No. of	Are the Water Gauges fitted direct to the Boiler Shells or mounted on Pillars?	MOUNTED ON PILLARS	
Material	Are the Water Gauge Pillars fitted direct to the Boiler Shells or connected by Pipes?	CONNECTED BY PIPES	
Diam. of	Are these Pipes connected to Boilers by Cocks or Valves?	COCKS	
Coefficient	Are Blow-off Cocks or Valves fitted on Boiler Shells?		
	No. of Strakes of Shell Plating in each Boiler	ONE	3
Crank	" Plates in each Strake	2	2
"	Thickness of Shell Plates Approved	$1\frac{21}{32}$ "	$1\frac{21}{32}$ "
"	" " in Boilers	$1\frac{21}{32}$ "	$1\frac{21}{32}$ "
Thrust	Are the Rivets Iron or Steel?	STEEL	STEEL
Intern	Are the Longitudinal Seams Butt or Lap Joints?	BUTT	BUTT
Propell	Are the Butt Straps Single or Double?	DOUBLE	DOUBLE
Crank	Are the Double Butt Straps of equal width?	No.	No.
Thrust	Thickness of outside Butt Straps	$1\frac{9}{32}$ "	$1\frac{9}{32}$ "
Intern	" inside "	$1\frac{15}{32}$ "	$1\frac{15}{32}$ "
Propel	Are Longitudinal Seams Hand or Machine Riveted?	MACHINE	MACHINE
	Are they Single, Double, or Treble Riveted?	TREBLE	TREBLE
	No. of Rivets in a Pitch	5	5
	Diam. of Rivet Holes $1\frac{21}{32}$ " Pitch	$10\frac{1}{2}$ "	$10\frac{1}{2}$ "
	No. of Rows of Rivets in Centre Circumferential Seams	✓	3
	Are these Seams Hand or Machine Riveted?	✓	MACHINE
	Diam. of Rivet Holes $1\frac{3}{4}$ " Pitch	✓	$1\frac{3}{4}$ " 50
	No. of Rows of Rivets in Front End Circumferential Seams	2	2
	Are these Seams Hand or Machine riveted?	HAND	HAND
	Diam. of Rivet Holes $1\frac{3}{4}$ " Pitch	5'038"	$1\frac{3}{4}$ " 5'0
	No. of Rows of Rivets in Back End Circumferential Seams	2	2
	Are these Seams Hand or Machine Riveted?	MACHINE	MACHINE
	Diam. of Rivet Holes $1\frac{3}{4}$ " Pitch	5'038"	$1\frac{3}{4}$ " 50
	Size of Manholes in Shell	16" x 12"	16" x 12"
	Dimensions of Compensating Rings	BOTH BOILERS = 2'-11 $\frac{3}{4}$ " x 3'-7" x 1 $\frac{21}{32}$ " THICK	

NOONAL
 PINIONS
 B.C. 8.0
 5/2/23.
 2/3/23.



© 2020

Lloyd's Register
Foundation

	SINGLE END:	DOUBLE END:
Diar. of Stays Approved	2" & 2 $\frac{1}{4}$ "	2" & 2 $\frac{1}{4}$ "
Threads per Inch	6	6 TH.
" " in Boilers	Do.	Do.
Material	STEEL	STEEL
Thickness of Front Tube Plates Approved	1 $\frac{21}{64}$ "	1 $\frac{21}{64}$ "
" " " " in Boilers	1 $\frac{5}{16}$ " F.	1 $\frac{5}{16}$ " F.
Pitch of Stay Tubes at Spaces between Stacks of Tubes	8"	8"
Thickness of Doublings in " " "	✓	✓
" Stay Tubes at " " "	1 $\frac{1}{4}$ " & 1 $\frac{5}{16}$ "	1 $\frac{1}{4}$ " & 1 $\frac{5}{16}$ "
Are Stay Tubes fitted with Nuts at Front End?	24 WITH. 150 WITHOUT.	48 WITH. 304 WITHOUT.
Thickness of Back Tube Plates Approved	1 $\frac{13}{16}$ "	1 $\frac{13}{16}$ "
" " " in Boilers	Do.	Do.
Pitch of Stay Tubes in Back Tube Plates	8"	8"
" Plain "	4"	4"
Thickness of Stay Tubes	1 $\frac{1}{2}$ " & 1 $\frac{5}{16}$ "	1 $\frac{1}{2}$ " & 1 $\frac{5}{16}$ "
" Plain "	8 W.G.	8 W.G.
External Diar. of Tubes	2 $\frac{3}{4}$ "	2 $\frac{3}{4}$ "
Material	IRON	IRON
Thickness of Furnace Plates Approved	1 $\frac{11}{16}$ "	1 $\frac{11}{16}$ "
" " " in Boilers	Do.	Do.
Smallest outside Diar. of Furnaces	3'-9 $\frac{5}{8}$ "	3'-9 $\frac{5}{8}$ "
Length between Tube Plates	7'-10 $\frac{1}{2}$ "	7'-10 $\frac{1}{2}$ "
Width of Combustion Chambers (Front to Back)	2'-7 $\frac{9}{16}$ " MEAN	2'-7 $\frac{9}{16}$ " MEAN
Thickness of " " Tops Approved	1 $\frac{21}{32}$ "	1 $\frac{21}{32}$ "
" " " in Boilers	1 $\frac{5}{8}$ " F.	1 $\frac{5}{8}$ " F.
Pitch of Screwed Stays in C.C. Tops	6 $\frac{1}{2}$ " x 7 $\frac{9}{16}$ "	6 $\frac{1}{2}$ " x 7 $\frac{9}{16}$ "

	SINGLE END:	DOUBLE END:
Diar. of Stays Approved	2" & 2 $\frac{1}{4}$ "	2" & 2 $\frac{1}{4}$ "
Threads per Inch	6	6 TH.
" " in Boilers	Do.	Do.
Material	STEEL	STEEL
Thickness of Front Tube Plates Approved	1 $\frac{21}{64}$ "	1 $\frac{21}{64}$ "
" " " " in Boilers	1 $\frac{5}{16}$ " F.	1 $\frac{5}{16}$ " F.
Pitch of Stay Tubes at Spaces between Stacks of Tubes	8"	8"
Thickness of Doublings in " " "	✓	✓
" Stay Tubes at " " "	1 $\frac{1}{4}$ " & 1 $\frac{5}{16}$ "	1 $\frac{1}{4}$ " & 1 $\frac{5}{16}$ "
Are Stay Tubes fitted with Nuts at Front End?	24 WITH. 150 WITHOUT.	48 WITH. 304 WITHOUT.
Thickness of Back Tube Plates Approved	1 $\frac{13}{16}$ "	1 $\frac{13}{16}$ "
" " " in Boilers	Do.	Do.
Pitch of Stay Tubes in Back Tube Plates	8"	8"
" Plain "	4"	4"
Thickness of Stay Tubes	1 $\frac{1}{2}$ " & 1 $\frac{5}{16}$ "	1 $\frac{1}{2}$ " & 1 $\frac{5}{16}$ "
" Plain "	8 W.G.	8 W.G.
External Diar. of Tubes	2 $\frac{3}{4}$ "	2 $\frac{3}{4}$ "
Material	IRON	IRON
Thickness of Furnace Plates Approved	1 $\frac{11}{16}$ "	1 $\frac{11}{16}$ "
" " " in Boilers	Do.	Do.
Smallest outside Diar. of Furnaces	3'-9 $\frac{5}{8}$ "	3'-9 $\frac{5}{8}$ "
Length between Tube Plates	7'-10 $\frac{1}{2}$ "	7'-10 $\frac{1}{2}$ "
Width of Combustion Chambers (Front to Back)	2'-7 $\frac{9}{16}$ " MEAN	2'-7 $\frac{9}{16}$ " MEAN
Thickness of " " Tops Approved	1 $\frac{21}{32}$ "	1 $\frac{21}{32}$ "
" " " in Boilers	1 $\frac{5}{8}$ " F.	1 $\frac{5}{8}$ " F.
Pitch of Screwed Stays in C.C. Tops	6 $\frac{1}{2}$ " x 7 $\frac{9}{16}$ "	6 $\frac{1}{2}$ " x 7 $\frac{9}{16}$ "



© 2020

Lloyd's Register
Foundation

VERTICAL DONKEY BOILERS.

No. of Boilers	Type		
Greatest Int. Diar.		Height	
Height of Boiler Crown above Fire Grate			
Are Boiler Crowns Flat or Dished?			
Internal Radius of Dished Ends		Thickness of Plates	
Description of Seams in Boiler Crowns			
Diar. of Rivet Holes	Pitch	Width of Overlap	
Height of Firebox Crowns above Fire Grate			
Are Firebox Crowns Flat or Dished?			
External Radius of Dished Crowns		Thickness of Plates	
No. of Crown Stays	Diar.	Material	
External Diar. of Firebox at Top		Bottom	Thickness of Plates
No. of Water Tubes	Ext. Diar.	Thickness	
Material of Water Tubes			
Size of Manhole in Shell			
Dimensions of Compensating Ring			
Heating Surface, each Boiler		Grate Surface	

SUPERHEATERS. (SINCE REMOVED)

Description of Superheaters SCHMIDT'S PATENT SMOKETUBE.
 SUPERHEATING SURFACE. 1310 SQ. FT. ER. S.E. B.L.R.

Where situated? IN BOILER TUBES & SMOKEBOXES

Which Boilers are connected to Superheaters? ALL

Can Superheaters be shut off while Boilers are working? YES

No. of Safety Valves on each Superheater ONE Diar. 2" ON SGL. END° 2½" ON DBL. END

Are " " fitted with Basing Gear? YES

Date of Hydraulic Test SEE OPPOSITE PAGE Test Pressure 440 LBS. PER Q"

Date when Safety Valves set 5-9-22 Pressure on Valves 225 " " "

HYD. TESTS OF SUPERHEATERS.

SING^l END° BOILERS DBL END° BOILERS

PORT. 2/11/21. CENTRE 4/11/21. ST° 8/11/21. PORT 14/11/21. CENTRE 17/11/21. ST° 25/11/21



© 2020

Lloyd's Register
Foundation

MAIN STEAM PIPES.

No. of Lengths	11	11	4	3
Material	STEEL	STEEL	STEEL	STEEL
Brazed, Welded or Seamless	SEAMLESS	SEAMLESS	SEAMLESS	SEAMLESS
Internal Diam.	5½"	3¾"	7½"	9"
Thickness	¼"	¼"	⅝"	⅜"
How are Flanges secured?	SCREWED & EXP.	SCREWED & EXP.	SCREWED & EXP.	
Date of Hydraulic Test	18-12-19	9-3-20	28-5-20	29-7-20
Test Pressure	660 LBS.	660 LBS.	660 LBS.	660 LBS.

No. of Lengths	2	6	3	4
Material	STEEL	STEEL	STEEL WITH M.S. BUTT STRAPS RIVETED OVER WELD.	STEEL
Brazed, Welded or Seamless	SEAMLESS	SEAMLESS		SEAMLESS
Internal Diam.	7½"	3¾"	11"	7½"
Thickness	⅝"	¼"	⅜"	⅝"
How are Flanges secured?	SCREWED & EXP.	SCREWED & EXP.	RIVETED.	SCREWED & EXP.
Date of Hydraulic Test	27-1-20	23-3-20	6-5-20	30-7-20
Test Pressure	660 LBS.	660 LBS.	660 LBS.	660 LBS.

No. of Lengths	2	6	1	4
Material	STEEL	STEEL	STEEL WITH M.S. BUTT STRAPS RIVETED OVER WELD.	STEEL
Brazed, Welded or Seamless	SEAMLESS	SEAMLESS		SEAMLESS
Internal Diam.	5½"	3½"	10½"	5½"
Thickness	¼"	⅜"	⅜"	¼"
How are Flanges secured?	SCREWED & EXP.	RIVETED.	RIVETED	SCREWED & EXP.
Date of Hydraulic Test	27-1-20	29-4-20	6-5-20	4-4-21
Test Pressure	660 LBS.	660 LBS.	660 LBS.	660 LBS.

MAIN STEAM PIPES contd

No. of Lengths	13	4	12	2	1
Material	STEEL	STEEL	STEEL	STEEL	STEEL
Brazed, Welded or Seamless	SEAMLESS	SEAMLESS	SEAMLESS	SEAMLESS	SEAMLESS
Int. dia.	3¾"	5½"	3¾"	7½"	6½"
Thickness	¼"	¼"	¼"	⅝"	⅝"
Flanges	SCREWED & EXP.				
Date of Hydraulic Test	4-4-21	25-4-21	5-5-21	16-5-22	3-8-22
Test Pressure	660 LBS.				

No. of Lengths	4	2	4	3	1
Material	STEEL	STEEL	STEEL	STEEL	STEEL
Brazed, Welded or Seamless	SEAMLESS	SEAMLESS	SEAMLESS	SEAMLESS	SEAMLESS
Int. dia.	5½"	5½"	5½"	5½"	6½"
Thickness	¼"	¼"	¼"	¼"	⅝"
Flanges	SCREWED & EXP.				
Date of Hydraulic Test	14-4-21	28-4-21	12-5-21	31-7-22	7-8-22
Test Pressure	660 LBS.				

No. of Lengths	12	12	6	2	2
Material	STEEL	STEEL	STEEL	STEEL	STEEL
Brazed, Welded or Seamless	SEAMLESS	SEAMLESS	SEAMLESS	SEAMLESS	SEAMLESS
Int. dia.	3¾"	3¾"	3¾"	9½"	6"
Thickness	¼"	¼"	¼"	⅜"	⅝"
Flanges	SCREWED & EXP.	SCREWED & EXP.	SCREWED & EXP.	RIVETED	SCREWED & EXP.
Date of Hydraulic Test	21-4-21	28-4-21	12-5-21	7-8-22	7-8-22
Test Pressure	660 LBS.	660 LBS.	660 LBS.	660 LBS.	660 LBS.

CONTINUED ON PAGE 43

EVAPORATORS.

No.	2	Type	VERTICAL	Tons per Day	50 EACH.
Makers	G. & J. WEIR L ^{TD} CATHCART, GLASGOW				
Working Pressure		Test Pressure	SHELL 30	Date of Test	26-10-21
Date of Test of Safety Valves under Steam	5-9-22				
EVAP ^{RS} Nos 6197, 6198.					

FEED WATER HEATERS.

No.	2	Type	MULTIFLOW SURFACE		
Makers	G. & J. WEIR, L ^{TD}				
Working Pressure		Test Pressure	SHELL 30	Date of Test	* SEE BELOW.
* 1 @ 300 f HEATING SURFACE [No 59719] TESTED 7-3-21					
1 @ 50 f " " [" 60465] " { 1-12-20 } B.O.T.					
" " " " { 21-12-20 }					

FEED WATER FILTERS.

No.		Type	GRAVITATION	Size	
Makers					
Working Pressure		Test Pressure		Date of Test	

LIST OF DONKEY PUMPS.

MAIN FEED PUMPS.	1 TURBINE. G. & J. WEIR, L ^{TD} .	
	2 DIRECT ACTING. G. & J. WEIR, L ^{TD} .	11½" x 15½" x 26"
SUCTIONS:- RESERVE F.W. TANKS, M. CONDENSERS, AUX. CLOSED SYSTEM.		
DISCHARGE:- BOILERS		
MAIN CIRCULATING P/PS.	2 TURBINE. G. & J. WEIR, L ^{TD} .	22" SUCT.
SUCTIONS:- SEA, BILGES.		
DISCHARGE:- MAIN CONDENSERS.		
AUX. DO.	2 IN No. MATTHEW PAUL & CO L ^{TD}	
SUCTION:- SEA		
DISCHARGE:- AUX. CONDENSER.		
BALLAST PUMPS.	{ 1 MOTOR DRIVEN. J.H. CARRUTHERS & CO L ^{TD}	12" x 12"
	{ 1 DUPLEX DO.	10" x 12" x 10"
SUCTIONS:- BALLAST TANKS, BILGES, SEA		
DISCHARGES:- OVERBOARD, WASH DECK MAIN, SANITARY MAIN, DISTILLER, MAIN CONDENSER.		
BILGE PUMPS.	1 DUPLEX. CUNARD ENGINE WORKS.	8" x 9" x 9"
SUCTIONS:- E.R. BILGES, S.H. BILGES, TUNNELS, HOLDS.		
DISCHARGE:- OVERBOARD.		
"	2 OPERATED BY MAIN GEAR WHEEL SHAFTS	7½" x 15"
SUCTION:- E.R. BILGES. DISCHARGE:- OVERBOARD.		
EMERGENCY DO.	1 MOTOR DRIVEN, J.H. CARRUTHERS & CO L ^{TD} .	9" x 9"
SUCTION:- BILGES. DISCHARGE:- OVERBOARD.		
FIRE PUMP	1 DUPLEX. CUNARD ENGINE WORKS	8" x 9" x 9"
SUCTION:- SEA. DISCHARGES:- FIRE MAIN, SANITARY MAIN.		
FORCED LUB ^{RS} PUMPS.	3 DUPLEX. G. & J. WEIR, L ^{TD}	8" x 7" x 18"
SUCTION:-		
OIL FUEL TRANSFER PUMP.	1 DUPLEX. G. & J. WEIR, L ^{TD}	8" x 7" x 18"
SUCTION:- DOUBLE BOTTOM TANKS. DISCHARGE:- SETTLING TANKS.		
OIL BILGE WELL PUMP.	1 DUPLEX. G. & J. WEIR, L ^{TD}	8" x 7" x 18"
SUCTIONS:- D.B. TANKS, OIL BILGES. DISCHARGES:- SETTLING TANKS, O'BOARD		

[CONTINUED ON PAGE 41.]

SPARE GEAR

No. of Top End Bolts.	No. of Bot. End Bolts.	No. of Cylinder Cover Studs
„ Coupling Bolts 1 SET	„ Main Bearing Bolts	„ Valve Chest „
„ Junk Ring Bolts	„ Feed Pump Valves	„ Bilge Pump Valves
„ H.P. Piston Rings	„ L.P. Piston Rings	„ L.P. Piston Rings
„ „ Springs	„ „ Springs	„ „ Springs
„ Safety Valve „	„ Fire Bars	„ Feed Check Valves
„ Piston Rods	„ Connecting Rods	„ Valve Spindles
„ Air Pump Rods	„ Air Pump Buckets	„ Air Pump Valves
„ Cir. „	„ Cir. „	„ Cir. „
„ Crank Shafts	„ Crank Pin Bushes	„ Crosshead Bushes
„ Propeller Shafts	„ Propellers	„ A Propeller Blades WITH STUDS & NUTS FOR 1 BLADE
„ Boiler Tubes	„ Condenser Tubes 50	„ Condenser Ferrules 50

OTHER ARTICLES OF SPARE GEAR:—

- 1 SET BEARING BUSHES, M. GEAR WH. SPINDLES FOR ONE GEAR CASE.
- 1 " H.P. I.P. L.P. BUSHES FOR TURBINES.
- 1 " CARBON SEGMENTS FOR H.P. I.P. L.P. GLANDS.
- 5% BLADING WITH PACKING & SHROUDDING.
- 50 OIL COOLER TUBES
- 2 BOLTS & NUTS FOR EA. SIDE OF ROTOR, MAIN GEAR WHEEL & PINION BEARINGS
- 1 ESCAPE VALVE SPRING FOR EACH SIZE FITTED.
- 12 STUDS & NUTS FOR CONDENSER DOORS.
- MAIN THRUST BLOCK PAD PIECES SUFFICIENT FOR ONE AHEAD SURFACE.
- 2 " " ADJUSTING LINERS FOR EACH LINER FITTED.
- 1 SET PAD PIECES FOR TURBINE THRUST BLOCKS
- 10 TOTAL NO. OF STUDS, BOLTS & NUTS FOR TURBINE CASINGS & COVERS
- 1 SET OF SPRINGS FOR TURBINE GLANDS COMPLETE FOR H.P. I.P. & L.P.

SPARE GEAR

- TURBO FEED PUMP.
- 1 IMPELLER
- 1 SET P/P PACKING RINGS
- 1 " BEARINGS COMPLETE
- 1 " CARBON PACKING SEGMENTS COMPLETE.
- 2 " PACKING FOR STUFFING BOXES.
- 1 NON CORRODIBLE SHAFT SLEEVE
- 1 STEAM VALVE & SEAT
- 1 SPRING FOR EACH FITTED.
- D. A. FEED PUMPS
- 1 SET SUCTⁿ VALVES & SPRINGS
- 1 " DISCⁿ " " "
- 3 EBON. PUMP BUCKET RINGS.
- 1 SET SYM PISTON RINGS
- FORCED LUBⁿ PUMPS.
- 2 SETS SUCTⁿ & DISCⁿ VALVES & SPRINGS.
- 2 " STⁿ PISTON RINGS
- MAIN CIRC. PUMPS [TURBO]
- 2 IMPELLERS
- 2 SETS OF BEARINGS COMPLETE
- 2 " " SHAFT SLEEVES
- 1 STEAM VALVE & SEAT.
- 2 SETS OF SOFT PACKING
- 1 " " CARBON PKG. SEGMENTS
- 2 " " SPRINGS
- 2 " " COPPER WASHERS.
- BALLAST PUMPS [SYM. & MOTOR DRIVEN]
- 1 SET OF RUBBER VALVES.
- 1 " " BRASS VALVE GUARDS & STUDS
- EMERGENCY BILGE PUMPS
- 1 SET OF PUMP VALVES & GUARDS COMPLETE
- FR. WATER & WASHING WATER PUMPS
- 1 SET OF RUBBER VALVES & G.M. VALVE GUARDS.
- AUX. CIRCULATING PUMP.
- 1 PR. CROSSHEAD BRASSES WITH BOLTS & NUTS.
- 1 " CRANK PIN " " "
- EVAPORATORS.
- 1 SET COILS COMPLETE
- 1/20 NO. DISTⁿ TUBES, FERRULES & GROMMETS
- CLOSED FEED SYSTEM.
- 2 NOZZLES, 1 VALVE SEAT WITH STUD, NUT & GUARD FOR AIR EJECTORS.
- 1 IMPELLER, 2 SETS OF BALL BEARINGS
- 1 STⁿ VALVE & SEAT, 2 SETS SHAFT SLEEVES
- 1 SET CARBⁿ PACKING BEGMⁿ & SPRINGS
- 2 SETS SPRINGS FOR ALL PARTS FOR WATER
- EXTRACTION PUMPS.
- 1/2 TOTAL NO. FERRULES & TUBES FOR HEATER COND^{SR}
- LEATHERS & SPRINGS FOR SUP. FEED VALVES
- 1/2 NO. TUBES, 1/4 NO. FERRULES & 1/2 NO. GROMMETS FOR MAIN SURFACE FEED WATER HEATER.

REFRIGERATORS.

No. of Machines 2 Capacity of each 9090 Cuff & 2 Cold Cupboards

Makers J. & E. HALL

Description No 9 SIZE VERTICAL, COMPRESSORS 2 3/4" 9" STROKE

EACH DRIVEN THROUGH SPUR GEARING BY A 20 B.H.P. MOTOR.

No. of Steam Cylinders, each Machine 1 No. of Compressors 1 No. of Cranks 1

Particulars of Pumps in connection with Refrigerating Plant and whether worked by Refrigerating Machines

or Independently

INDEPENDENTLY - SEE BRINE PUMPS. P. 41

System of Refrigeration C.O.₂

Insulation GRANULATED CORK.

Are Brine and other Regulating Valves placed so as to be accessible without entering the Insulated

Spaces? YES

Are all Pipes, Air Trunks, &c., well secured and protected from risk of damage? YES.

Are all Bilge, Sounding, and Air Pipes in Insulated Spaces properly insulated? YES.

Are Thermometer Tubes so arranged that Water cannot enter and freeze in them? YES.

Date of Test under Working Conditions

(SHIP'S USE)

RESULTS OF TRIALS.

COMPARTMENT.	Temp. at beginning of Trial.	Temp. at end of Trial.	Time required to obtain this Result.	Rise of Temp. after hours.
2 Cargo w/c - size 10.9 Installation 1928 - 1st report see 17-3-28 10/431				
Construction at J. & E. Hall see report 21-12-37 No 4697				

Articles of Spare Gear for Refrigerating Plant carried on board:—

GLUBRICATOR GLAND LEATHERS

1 PISTON & ROD WITH RINGS FOR COMPS

2 DEL' VALVES SEATS & SPRINGS FOR DO

2 SUCT' " " " " "

6 ADDITIONAL SPRINGS FOR DO

2 C.O.₂ STOP VALVES

1 " REGULATING VALVE SPINDLE

1 " PRESSURE GAUGE

1 PR. CRANK PIN BOLTS & NUTS.

1 MAIN BEARING " " "

1 CRANKSHAFT

6 SAFETY DISCS.

2 SETS OF COPPER JOINT RINGS FOR COMPRES

1-1/8" CONTROL VALVE

3 SPARE PIPS FOR DO

1 SPRING BALANCE.

OVER

SPARE GEAR CONT.

REFRIGERATING MACHINERY (CONT.)

4 COMPRESSOR PISTON RINGS

48 SPECIAL METAL RINGS FOR COMPRESSOR GLANDS

1 ARMATURE, 1 SET OF BEARING BUSHES,

1 LINE OF BRUSH HOLDERS & 1 SET OF CARBON

BRUSHES FOR EACH MOTOR.

OIL FUEL INSTALLATION

1 SET STRAINER BASIS FOR EACH SUCTⁿ STRAINER.

1 THERMOMETERS

36 BURNER BODIES. 36 CAPS. 180 NOZZLES.

180 DIAPHRAGMS

3 AUX. OIL HEATERS WITH STⁿ RAISING BURNER,THER^{ms} HOLDERS & BRASS CASED THER^{ms} & THE

NECESSARY FLEXIBLE TUBING FOR CONNECTING

TO THE DISTRIBUTING VALVE BOXES.

OIL FUEL TRANSFER PUMP

1 SET SUCTⁿ & DISCⁿ V's & SPRINGS.

1 " STEAM PISTON RINGS.

FORCED DRAUGHT FANS

1 ARMATURE FOR MOTOR.

ELECTRIC LIGHTING

AUXILIARY SWITCHBOARD "A"

CIRCUIT	No of Lights	Candle power or Watts.	Current required. Amps.	Size of Conductor	Current Density	Conductivity of Conductor.	Insulation Resistance per mile.
A.D.1. F. DECK SECTION "K"	13	40 W.	4.7	7/064"	209	22.5	600 MEGOHMS.
A.S.2. CREWS QRS. D & E DECK	64	40 W.	23.3	7/064"	1036	22.5	D°
A.S.3. CARGO CLUSTERS. 1, 2, 3 & 4	24	32 c.p.	24.4	7/064"	1084	22.5	D°
A.S.4. 3 rd C. DINING SPACE, LAV ^s & STEWARDS QRS.	53	40 W. } DISH WASHER	26.1	19/052"	653	40	D°
A.S.5. DECK & STAIR LAV ^s & PRINTING	44	40 W.	16	19/052"	400	40	D°
A.S.6. E. & F. DECK SECS. G & L	63	40 W.	22.9	7/064"	1018	22.5	D°
A.S.7. D° H & M	72	40 W.	26.2	19/052"	655	400	D°
A.S.8. D° I & N	43	40 W.	15.6	7/064"	693	22.5	D°
A.E.1. SEC. H & STEWARDS QRS	6 1	40 W. 32 c.p. }	2.2	7/036"	314	7	D°
A.E.2. CREWS QRS. C, D & E DECK	10	40 W. }	4.7	7/064"	209	22.5	D°
A.E.3. 3 rd C. DINING SPACE & ENTRANCE.	27	40 W.	9.8	7/064"	436	22.5	D°
A.E.4. SECTIONS "G & L"	10	40 W.	3.6	7/036"	514	7	D°
A.E.5. " H & M.	12	40 W.	4.4	7/036"	629	7	D°
A.E.6. " I & N	6	40 W.	2.2	7/036"	314	7	D°

AUXILIARY SWITCHBOARD "B"

B.S.1. 1 st C. DINING SALOON	12 10	16 c.p. 40 W. }	43.2	19/064"	720	60	600 MEGOHMS.
B.S.2. 1 st C. ACOM. " D DECK.	7 FAN SOCKETS 54	16 c.p. 40 W. }	25	19/052"	625	40	D°
B.S.3. P.O's ACOM. & NAV ^s LTD.	5 3 2	32 c.p. 40 W. 60 W. }	20	19/052"	500	40	D°
B.S.4. CARGO CLUSTERS. 5, 6, 7 & 8	24	32 c.p. 16 c.p. 40 W. }	24.4	7/064"	1084	22.5	D°
B.S.5. 1 st C. ACOM. " C DECK	90 3	40 W. 60 W. 16 c.p. 40 W. }	34.9	19/064"	582	60	D°
B.S.6. D° PORT & CAPT ⁿ P ⁿ O°	5 1	16 c.p. 40 W. }	47	19/064"	785	60	D°
B.S.7. D° S rd B D° & 1 st C. LOUNGE	47 13	16 c.p. 40 W. 60 W. }	31.5	19/052"	788	40	D°
B.S.8. D rd P ⁿ & 1 st C. WRITING ROOM	17 42 9	16 c.p. 40 W. 60 W. }	28.8	19/052"	720	40	D°
B.E.1. 1 st SALOON & D° D rd P ⁿ & S rd	12 10	40 W. 60 W. }	9.8	7/064"	436	22.5	D°

[OVER

ELECTRIC LIGHTING

AUXILIARY SWITCHBOARD "B" CONTINUED

Circuit	No of Lights	Candle power or watts	Current required Amps.	Size of Conductor	Current Density 1000"	Conductivity of Conductor	Insulation Resistance per Mile.
BED 2. NAY. BDC. CAPT & OFFICERS ROOMS	60 32 c.p. 40 W. 20 W.	51.8	19/072"	691	75	600 MEGOHMS	
BED 3. 1 st CL. ACOM. C' DECK	8 4 40 W. 60 W.	5.1	7/036"	729	7	D°	
BED 4. DR "B" DECK	10 4 40 W. 60 W.	5.8	7/036"	829	7	D°	
BED 5. PUBLIC ROOMS "A" DECK & BOAT DECK ST°	3 5 40 W. 60 W.	3.5	7/036"	500	7	D°	
BED 6. DR PORT	3 3 40 W. 60 W.	2.7	7/036"	386	7	D°	
BED 7. NAVIGATION LIGHTS.	5 32 c.p.	5.1	7/036"	729	7	D°	

AUXILIARY SWITCHBOARD "C"

C.S. 1. 2 nd CL. ACOM. 3 rd C' DECK	2 108 16 c.p. 40 W.	40.3	19/064"	672	60	600 MEGOHMS
C.S. 2. DR PORT "	2 105 16 c.p. 40 W.	39.2	19/064"	653	60	D°
C.S. 3. 1 st CL. SMOKE RM. GYM. & VERANDAH CAFE.	21 64 2 FAN SOCKETS 16 c.p. 40 W.	38.5	19/052"	963	40	D°
C.S. 4. 1 st CL. ACOM. 3 rd B' DECK	3 5 1 FAN SOCKET GYM MOTORS 16 c.p. 40 W.	29.2	19/052"	730	40	D°
C.S. 5. DR PORT "	6 66 16 c.p. 40 W.	24.5	19/052"	613	40	D°
C.S. 6. 3 rd CL. DINING SALOON FOR	34 40 W.	12.3	7/064"	547	22.5	D°
C.S. 7. DR. AFT. & SECT. P. & STORE.	108 40 W.	39.4	19/052"	985	40	D°
C.S. 9. 2 nd CL. DINING SALOON E' DR	3 62 16 c.p. 60 W.	37.9	19/052"	948	40	D°
C.S. 10. 2 nd CL. ACOM. "D" DECK	6 66 16 c.p. 40 W.	24.5	19/052"	613	40	D°
C.S. 11. PANTRIES & GALLEYS	115 40 W.	41.9	19/064"	698	60	D°
C.E.S. 1. ENGINEERS' ACOM.	56 16 c.p. 40 W.	39.1	19/064"	652	60	D°
C.E.S. 2. ENGINE ROOM	10 5 40 W. 100 W. 300 W.	12.9	7/064"	573	22.5	D°
C.E.S. 3. 1 st CL. ACOM. B' DR. P. & S.	13 40 W.	4.7	7/064"	209	22.5	D°
C.E.S. 4. 2 nd CL. ACOM. C' DR. P. & S.	13 40 W.	4.7	7/064"	209	22.5	D°
C.E.S. 5. 1 st CL. SMOKE RM. VERANDAH CAFE. GYM. & BOAT DECK	12 6 40 W. 60 W.	8.3	7/064"	369	22.5	D°

ELECTRIC LIGHTING

AUXILIARY SWITCHBOARD "C" CONTINUED

Circuit	No of Lights	Candle power or watts	Current required Amps.	Size of Conductor	Current Density 1000"	Conductivity of Conductor	Insulation Resistance per Mile.
C.E.D. 6. 1 st CL. SMOKE ROOM. VERANDAH CAFE. GYM & BOAT DECK	11 1 40 W. 60 W.	4.6	7/064"	204	22.5	600 MEGOHMS	
C.E.D. 7. 2 nd CL. SALOONS & STORES	15 6 40 W. 60 W.	8.7	7/064"	387	22.5	D°	
C.E.D. 8. BOILER ROOM BALL FLOAT ALARM	17 3 40 W. 100 W.	10.9	7/064"	484	22.5	D°	
C.E.D. 9. 1 st CL. PANTRIES GALLEY & "D" DECK. P.	17 40 W.	6.2	7/064"	276	22.5	D°	
C.E.D. 10. 1 st CL. "D" DR. ST. 2 nd PANTRIES & 3 rd SALOON.	25 40 W.	9.1	7/064"	404	22.5	D°	

AUXILIARY SWITCHBOARD "D"

D.S. 1. 3 rd CL. PUBLIC ROOMS, E' DR. & SECT. R, F DECK.	56 2 40 W. 16 c.p. 40 W. 60 W.	20.4	19/052"	510	40	600 MEGOHMS
D.S. 2. 2 nd CL. ACOM. C & E' DRs	7 2 40 W. 60 W.	29.0	19/052"	725	40	D°
D.S. 3. CARGO CLUSTERS, 10, 11, 12	24 32 c.p. 16 c.p. 40 W.	24.4	7/064"	1084	22.5	D°
D.S. 4. HOSPITALS, P. & S' D' DR. STERILIZER	59 40 W.	32.0	19/064"	533	60	D°
D.S. 5. E. & F' DRs. SECT. J & Q	70 40 W.	25.5	19/052"	638	40	D°
D.S. 6. CARGO CLUSTERS, 13, 14	12 32 c.p.	12.2	7/064"	542	22.5	D°
D.S. 7. STEWARDS ACOM. E & F DRs	56 40 W.	20.4	19/052"	510	40	D°
D.S. 8. 3 rd CL. PUBLIC ROOMS "D" DR. & HOSPITAL POOR	2 45 40 W.	17.4	19/052"	435	40	D°
D.S. 9. 2 nd CL. ACOM. C' DR. 2 nd LOUNGE & SMOKE RM. ST°	2 84 16 c.p. 40 W. 60 W.	41.4	19/064"	690	60	D°
D.S. 10. DR. PORT BARBERS SOCIETY 1 FAN DR	3 75 19 16 c.p. 40 W. 60 W.	52.9	19/064"	882	60	D°
D.E. 1. SECT. "R", F DECK	4 40 W.	1.5	7/036"	214	7	D°
D.E. 2. SECT. J & Q. E & F DECKS.	9 40 W.	3.3	7/036"	471	7	D°
D.E. 3. "D" DR. FOR & HOSPITALS.	2 3 16 c.p. 40 W. 60 W.	12.1	7/052"	835	14.5	D°
D.E. 4. "E" DR. & TUNNEL ESCAPE.	31 40 W.	11.3	7/052"	779	14.5	D°
D.E. 5. STEWARDS. STEERING COMP. 3 rd CL. PUBLIC RM	22 40 W.	8.0	7/064"	356	22.5	D°

[OVER.]

ELECTRIC LIGHTING

AUXILIARY SWITCHBOARD "D" Continued

Circuit	No of Lights.	Candlepower or Watts	Current required. Amps.	Size of Conductor	Current Density	Conductivity of Conductor	Insulation Resistance Per Mile.
(DOCKING BRIDGE, HOSPITALS & POOPDK.	1 24	32 c.p. 40 W. }	9.7	7/064"	431	22.5	600 MEGOHMS.
2 nd PUBLIC R ^{ms} & ST ^{rs}	13 6	40 W. 60 W. }	80	7/064"	356	22.5	D ^o
DE D ⁸ D ^o PORT.	12 3	40 W. 60 W. }	6.0	7/064"	267	22.5	D ^o

AUXILIARY SWITCHBOARD "F" --

F.S.8 BOAT & FLOOD LIGHTS.	2 4	500 W. 1000 W. }	45.5	19/052"	1138	40.0	600 MEGOHMS.
----------------------------	--------	---------------------	------	---------	------	------	--------------

AUXILIARY SWITCHBOARD "E"

POWER BOARD ONLY -- WINCHES, BOAT HOISTS &C.

ELECTRIC LIGHTING.

Installation Fitted by THE FAIRFIELD S. & E. CO. LTD.

No. and Description of Dynamos 2 MAIN TURBO GENERATORS & 1 EMERGENCY OIL DRIVEN DITTO.

Makers of Dynamos MAIN ENG & DYCS - METROPOLITAN VICKERS ELECTRIC CO LTD

EMER^y DY^o - METROPOLITAN CO. - ENGINE J. I. THORNEYCROFT & CO LTDCapacity MAIN - 1700 Amperes, at 22.5 Volts, 1000 Revols. per Min. EMER^y - 160 Amperes, at 22.5 Volts, 740 Revols. per Min.

Current Alternating or Continuous

CONTINUOUS.

Single or Double Wire System

THREE WIRE SYSTEM

Position of Dynamos MAIN - BOTTOM PLATFORM OF ENGINE ROOM, AFT
EMER^y - IN EMERGENCY DYNAMO ROOM, BRIDGE DECK, AFTMain Switch Board IN ENGINE R^m ON LOWER DECK ABOVE GENERATORS.

No. of Circuits to which Switches are provided on Main Switch Board

18

Particulars of these Circuits:--

Circuit.	Number of Lights.	Candle Power. or Watts.	Current Required. Amps.	Size of Conductor.	Current Density.	Conductivity of Conductor.	Insulation Resistance per Mile.
TURNING MOTORS	-	-	-	-	-	-	-
BALLAST PUMP	-	-	-	-	-	-	-
SANITARY PUMP	-	-	-	-	-	-	-
STEERING MOTOR	-	-	-	-	-	-	-
FORCED DRAUGHT FANS.	5 th	-	-	-	-	-	-
D ^o	PI	-	-	-	-	-	-
AUX. SWITCHBOARD, FORW ^d	-	-	-	-	-	-	-
D ^o	FOR ^d MID.	-	-	-	-	-	-
D ^o	AFT MID.	-	-	-	-	-	-
D ^o	AFT	-	-	-	-	-	-
POWER BOARD "E"	-	-	-	-	-	-	-
EMERGENCY C.O. SWITCHBOARD	-	-	-	-	-	-	-
BRINE & F ^r . WATER PUMPS	-	-	-	-	-	-	-
CO ₂ MOTOR No 1	-	-	-	-	-	-	-
D ^o	2	-	-	-	-	-	-
BOILER R ^m LIGHTS	57 8	18 c.p. 40 W. } 100 W. }	29.5	19/064"	492	60	600 MEGOHMS
ENGINE R ^m LIGHTS	21 73	100 W } 40 W }	45.6	19/052"	1140	40	D ^o
WORKSHOP MOTOR & CUMBERLAND ELECTROLYTIC SYSTEM.	-	-	-	-	-	-	-

Total No. of Lights 3003 No. of Motors driving Fans, &c. 03 No. of Heaters

Current required for Motors and Heaters 5884 Amps. (93.6 Amps INCLUDED IN LIGHTING CIRCUIT)

GENERAL CONSTRUCTION.

Have the Machinery and Boilers been constructed in accordance with the requirements of the Rules and the

Approved Plans?

YES

If not, give details of the points of difference, and state when these were sanctioned by the Chief

Surveyor.

Are the Materials used in the Construction of Engines and Boilers, so far as could be seen, sound and trustworthy?

YES

Is the Workmanship throughout thoroughly satisfactory?

YES

The above correctly describes the Machinery of the S.S. "TUSCANIA"

as ascertained by me from personal examination

Geo. Macfarlane

Engineer Surveyor to the British Corporation for the
Survey and Registry of Shipping.

Fees—

MAIN BOILERS.

H.S. 32499 Sq. ft.

£ s. d.

: :

G.S. 74646 "

: :

DONKEY BOILERS.

H.S. ✓ Sq. ft.

: :

G.S. ✓ "

: :

£ : :

ENGINES.

L.P.C. 13,500 SHP Cub. ft.

: :

£ : :

Testing, &c.

: :

£ : :

Expenses

: :

Total ... £

: :

It is submitted that this Report be approved,

W. H. King
Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the

27th Nov., 1922

Fees advised

Fees paid



© 2020

Lloyd's Register
Foundation
Secretary.

GENERAL CONSTRUCTION.

LIST OF DONKEY PUMPS [CONT^d FROM P. 29]

OIL FUEL PUMPS.	2 SIMPLEX. G. & J. WEIR, L ^o [FOR D.E. BOILERS]	
	2 " " " " [" S.E. "]	4" x 8"
	SUCTION:-	SETTLING TANKS.
	DISCHARGE:-	OIL FUEL BURNERS
FRESH WATER PUMP.	1 DUPLEX. THOM. LAMONT & C ^o	7" x 7" x 8"
	SUCTION:-	
WASHING WATER PUMP.	1 DUPLEX. THOM. LAMONT & C ^o	7" x 7" x 8"
	SUCTION:-	CONDENSED WATER RESERVE TANKS.
	DISCHARGE:-	SERVICE TANKS ON DECK.
SAN ^y OR WASH DECK P/P.	2 OPERATED BY MAIN GEAR WHEEL SHAFTS	7½" x 15"
	SUCTION:-	SEA.
	DISCHARGES:-	WASH DECK MAIN. OVERBOARD.
HYDRAULIC PUMP.	1 DOUBLE DUPLEX. G. & J. WEIR, L ^o	
	SUCTION:-	
SANITARY & W.S. PUMP.	1 ELECTRIC ROTARY	
	SUCTION:-	SEA.
	DISCHARGES:-	SANITARY & WATER SERVICE MAINS.
REFRIGERATING CIRC ^s P/P.		
	SUCTION	
BRINE PUMPS.	3 TURBINE. W.H. ALLEN, SONS & C ^o L ^o	2" SUCT ^s ¹⁷⁵⁰ / ₂₀₅₀ R.P.M.
	SUCTION	
STEAM HEATING CONDENSING PUMP	1. J.H. CARRUTHERS & C ^o L ^o	6" x 18"
	SUCTION	



© 2020

Lloyd's Register
Foundation

MAIN STEEL PIPES (Cont. from Page 37)

No. of Lengths	Material	Welded, welded or seamless	Internal Dia.	Thickness	Flanges	Rate of Hydraulic Test	Test Pressure
3	Steel	Seamless	36"	$\frac{3}{8}$ "	Riveted	20-P-20	600 Lbs.
3	Steel	Welded or Seamless	36"	$\frac{3}{8}$ "	Riveted	11-8-20	600 Lbs.
1	Steel	Welded or Seamless	36"	$\frac{3}{8}$ "	Riveted		600 Lbs.



© 2020

Lloyd's Register
Foundation