

1892

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No.

1626

No. in Register Book

2880

S.S.

"City of Constance"

Makers of Engines

Wallrod & Sijmshof

Works No.

850

Makers of Main Boilers

Wallrod & Sijmshof

Works No.

850

Makers of Donkey Boiler

None

Works No.

—

MACHINERY



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014300-014311-0290

No.

THE BRITISH CORPORATION FOR THE SURVEY

AND

REGISTRY OF SHIPPING.

Report No. *1626* No. in Register Book *2880*

Received at Head Office

*23<sup>rd</sup> June 1923.*

Surveyor's Report on the New Engines, Boilers, and Auxiliary  
Machinery of the *Single Screw* *Steamer*  
*"City of Canterbury"*

Official No. *146325* Port of Registry *Glasgow*

Registered Owners *Ellerman Line Ltd.*

Engines Built by *Walter & Shipman & Co. Ltd.*

at

*Walter & Shipman & Co. Ltd.*

Main Boilers Built by

*Walter & Shipman & Co. Ltd.*

at

*Walter & Shipman & Co. Ltd.*

Donkey

"

*None*

at

Date of Completion

*13 February 1923*

First Visit

*7/1/22*

Last Visit

*13/2/23*

Total Visits *105*

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## RECIPROCATING ENGINES.

Works No. **850** No. of Sets **1** Description **Annapolis engine**

No. of Cylinders each Engine **4** No. of Cranks **4**  
 Diars. of Cylinders **26 3/4" x 38 1/2" x 55 1/2" x 80** Stroke **51"**

Cubic feet in each L.P. Cylinder **148.3**

Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cyl.? **Yes**

" " " each Receiver? **Yes**

Type of H.P. Valves, **Piston valve**

" 1st I.P., **do.**

" 2nd I.P., **do.**

" L.P., **Double ported slide valve**

" Valve Gear **Stephenson link**

" Condenser **Surface**

Cooling Surface **5200** sq. ft.

Diameter of Piston Rods (plain part) **7 3/4"**

Screwed part (bottom of thread) **5.42**

Material **Forged steel**

Diar. of Connecting Rods (smallest part) **7"**

Material **Forged steel**

" Crosshead Gudgeons **7 1/4"**

Length of Bearing **16 1/2"**

Material **do.**

No. of Crosshead Bolts (each) **4**

Diar. over Thrd. **3 1/2"**

Thrds. per inch **4**

Material **steel**

" Crank Pin " **2**

" **4 1/2"**

" **4**

" **1 3/4"**

" Main Bearings **6**

Lengths **20 20 3/4 40 18 3/4"**

" Bolts in each **2**

Diar. over Thread **3 3/8"**

Threads per inch **4**

Material **steel**

" Holding Down Bolts, each Engine **152**

Diar. **1 3/8"**

No. of Metal Chocks **each**

Are the Engines bolted to the Tank Top or to a Built Seat? **Bolted to tank top.**

Are the Bolts tapped through the Tank Top and fitted with Nuts Inside? **No**

If not, how are they fitted? **Screwed thru. from inside fitted with grommet on inside and nut on outside**

Connecting Rods, Forged by **Hadfield's L.**

Piston " " **do.**

Crossheads, **do.**

Connecting Rods, Finished by **Hall and S. E. C.**

Piston " " **do.**

Crossheads, " **do.**

Date of Harbour Trial **February 15<sup>th</sup> 1923.**

" Trial Trip **February 13<sup>th</sup> 1923.**

Trials run at **North Sea**

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

If so, what was the I.H.P.? **4260.**

Revs. per min. **82**

Pressure in 1st I.P. Receiver, **100** lbs., 2nd I.P., **28** lbs., L.P., **6** lbs., Vacuum, **28 1/2"** ins.

Speed on Trial **No speeds taken.**

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

data:

Service = **3420**

Builders' estimated I.H.P. **Trial = 4260**

Revs. per min. **76 1/2** ON SERVICE **82** ON TRIAL

Estimated Speed **12 Knots.**

**76 1/4** service }  
**82** Trial }

**\$10.00 to be charged for  
 Two electric equipment  
 by GMS 15/11/28**

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(See pp. 6 and 7.)

No. TURBINE ENGINES.

Works No. Type of Turbines  
 No. of H.P. Turbines No. of I.P. No. of L.P. No. of Astern

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

Is Single or Double Reduction Gear employed?

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

Estimated Pressure per lineal inch

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

Estimated Pressure per lineal inch

Revs. per min. of H.P. Turbines at Full Power S.H.P.

" " I.P. " "

" " L.P. " "

" " 1st Reduction Shaft

" " 2nd "

" " Propeller Shaft

Total Shaft Horse Power

Date of Harbour Trial

" Trial Trip Tunnel shafts. Two aft 15 $\frac{1}{4}$ " diam.Trials run at Remainder 14 $\frac{3}{4}$ " "

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

Combined S.H.P. † Reciprocating 3350

Turbine Spindles forged by ‡ Turbine 1350

" Wheels forged or cast by 4700 at 86 r.p.m.

Reduction Gear Shafts forged by

" Wheels forged or cast by

† Assuming a Mech. Eff. of .9. } Combined M.E. stated to  
 ‡ " " " " .95 } be .89.

Additional gear supplied.

## DESCRIPTION OF INSTALLATION.

One Keith cooling fan for motor;  
 Series wound, D.C., 440 volts, 28.6 amps.  
 1100 r.p.m. N° 151276.

One control cubicle containing circuit-  
 breaker.

One lubricating oil tank under generator.

One Weir's lubricating & relay oil pump,  
 N° 96217.

One oil-pressure-operated shut-off &  
 isolating valve in reduction pipe.

One Metropolitan-Vickers lubricating oil  
 cooler, tested to 50 lb/□" & stamped

(S) 16/6/30.

One Vickers centrifugal oil separator,  
 N° 954420.

One Vortex low pressure steam drier.

One regenerative condenser; shell built  
 with electrically-welded steel plates; water  
 ends cast iron; cooling surface 6600 sq.

One circulating pump by Drysdale, driven by  
 compound steam engine N° 22452.

One main injection } 21" valves by  
 One " discharge } Palmer's S. & J. Co.

One Weir's vacuum augmentor with single-  
 stage air extractor.

Main cables (6) (L.C., A. & B.) between generator &  
 motor, by W.T. Henley & Co.

(See also pp. 4 and 5.)

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# AUXILIARY TURBO-ELECTRIC PROPELLING MACHINERY.

No. of Turbo-Generating Sets *One* Capacity of each *1350 S.H.P. @ 3000 r.p.m.*  
Type of Turbines employed *Rateau impulse, exhaust steam, No. 2756.*  
Description of Generators *Shunt-wound, enclosed circuit, self-contained cooling system; 1100 KW. 440 volts, 2500 amps. 750 r.p.m. No. P. 66662. Single reduction double-helical gearing with Wellman-Bibby coupling.*

No. of Motors driving Propeller Shafting *One*  
Are the Propeller Shafts driven direct by the Motors or through Gearing? *Direct.*

Is Single or Double Reduction Gear employed? *Single between turbine & generator*

Description of Motors *Compound-wound, D.C., independent fan cooling system; 1350 S.H.P., 440 volts, 2500 amps., 86 r.p.m. at full power, No. 66719.*

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

Estimated Pressure per lineal inch —

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

Estimated Pressure per lineal inch —

Revs. per min. of Generators at Full Power *750*

" Motors " *86*

" 1st Reduction Shaft —

" 2nd " —

" Propellers at Full Power *86*

*Indicated* Total Horse Power *\*5360*, of which *1630* is supplied by

Date of Harbour Trial *11<sup>th</sup> Sept. 1930 at Tarrow.*

" Trial Trip *13<sup>th</sup> Sept. 1930*

Trials run at *mouth of river Tyne.* recorded.

Speed on Trial *not* Knots. Propeller Revs. per min. *86.4* S.H.P. *not* ~~750~~.

\* I.H.P. of main engine limited to 3730 by means of a

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Makers of Turbines *Metropolitan-Vickers Electrical Co. Ltd., Manchester.*

" Generators " " " " "

" Motors " " " " "

" Reduction Gear " " " " "

Turbine Spindles forged by *English Steel Corporation Ltd., Sheffield.*

" Wheels forged or cast by " " " "

Reduction Gear Shafts forged by " " " "

" Wheels forged or cast by " " " "

Tunnel Shafts (3) " " " "

## DESCRIPTION OF INSTALLATION.

The turbine and generator are bolted to built seatings on No. 2 deck, Port side (previously bunker space.)

The motor is contained in a W.T. compartment built into the tunnel. The armature shaft forms one length of the tunnel shafting. Two new lengths were fitted between the motor shaft & the tail shaft; and one new length forward connecting the motor shaft to the original tunnel shafting.

With 4 new bronze blades, diameter of propeller remains as before; but pitch altered by 3" and above set. expanded surface now 116 sq instead of 122 sq as formerly.

[For further particulars, see Reports Nos 6117 and 56294, Forging Reports; File; Shafting Calculations, etc.] Combined mechanical efficiency of above set stated to be .89. block in the lever of the H.P. cylinder expansion gear.

## SHAFTING.

Are the Crank Shafts Built or Solid?

*Built*

No. of Lengths in each

*2*

Angle of Cranks

*70°-95°-100°-95°*

Diar. by Rule

Actual

*15 1/2"*

In Way of Webs

*16"*

" of Crank Pins

*15 1/2"*

Length between Webs

*17 3/4"*

Greatest Width of Crank Webs

*2-8 1/2"-2" M.P.L.P.*

Thickness

*10 1/2"*

Least

"

*2-1 1/2"-2" M.P.L.P.*

"

*23 1/2" H.P. 1" M.P.*

Diar. of Keys in Crank Webs

Length

*3 1/4"**6 1/2"*

Screwed or Plain

*plain*

No. of Bolts each Coupling

*6*

Diar. at Mid Length

*3 3/8"*

Diar. of Pitch Circle

*22 1/4"*

Greatest Distance from Edge of Main Bearing to Crank Web

*4"*

Type of Thrust Blocks

*Much. Collar hors. shoe*

No.

"

Rings

*8*

Diar. of Thrust Shafts at bottom of Collars

*15 1/2"*

No. of Collars

*8*

" " Forward Coupling

*15 1/2"*

At Aft Coupling

*15 1/2"*

Diar. of Intermediate Shafting by Rule

Actual

*14 3/4"*

No. of Lengths

*4*

No. of Bolts each Coupling

*6*

Diar. at Mid Length

*3 3/8"*

Diar. of Pitch Circle

*22 1/4"*

Diar. of Propeller Shafts by Rule

*16.76"*

Actual

*17"*

At Couplings

*15 1/2"*

Are Propeller Shafts fitted with Continuous Brass Liners?

*Yes*

Diar. over Liners

*18 5/8"-18 3/4"-19"*

Length of After Bearings

*6'-0 1/2"*

Of what Material are the After Bearings composed?

*Legume Vitae*

Are Means provided for Lubricating the After Bearings with Oil?

*Yes*

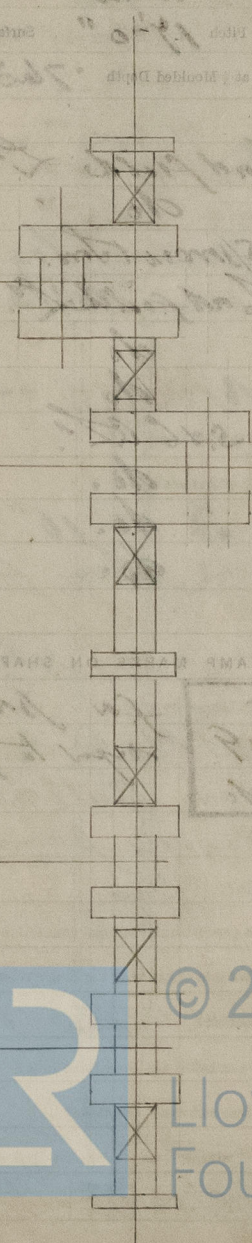
" " to prevent Sea Water entering the Stern Tubes?

*Yes*

If so, what Type is adopted?

*Rubber ring at outer end.*

## SKETCH OF CRANK SHAFT.



No. of Blades each Propeller

4

Fitted or Solid?

Fitted

Material of Blades

Manganese bronze

Boss

Cast iron

Diam. of Propellers

19'-0" Pitch 14'-0"

Surface (each

30.5 S. ft.

Coefficient of Displacement of Vessel at  $\frac{1}{2}$  Moulded Depth

.762

Crank Shafts Forged by

Hadfield L.

Material

Inger steel

Pins

do

"

do

Webs

J. Spencer &amp; Son.

"

do

Thrust Shafts

Hadfield L.

"

do

Intermed. "

do

"

do

Propeller "

do

"

do

Crank " Finished by

W. S. &amp; Co.

Thrust "

do

Intermed. "

do

Propeller "

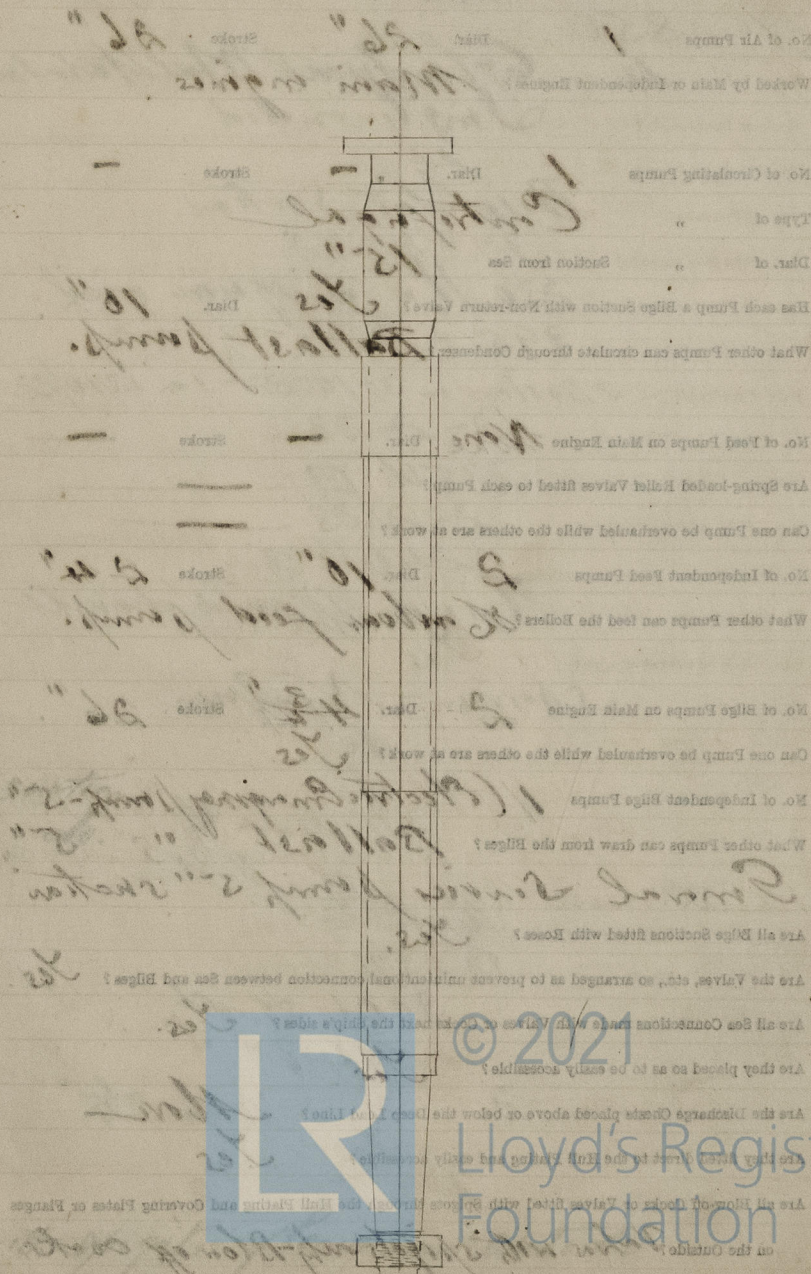
do

STAMP MARKS ON SHAFTS.

B.O.T. & T.  
No. 5749  
H. N. date

for sectional view plan.  
sign to facing shaft.

## SKETCH OF PROPELLER SHAFT.





## BOILERS.

Works No. **850**  
 No. of Boilers **4** Type **Cylindrical Multitubular Single-ended**  
 Single or Double-ended  
 No. of Furnaces in each **4**  
 Type of Furnaces **Dighton Section**  
 Date when Plan approved **17-3-22**  
 Approved Working Pressure **230 lb. W. gauge inch.**  
 Hydraulic Test Pressure **395 "**  
 Date of Hydraulic Test **3 Boilers on 3-10-22 - 1 on 13/10/22**  
 " when Safety Valves set **2-2-23.**  
 Pressure at which Valves were set **235 lb. W.**  
 Date of Accumulation Test **2-2-23**  
 Maximum Pressure under Accumulation Test **240 lb. W.**  
 System of Draught **Howden forced draught**  
 Can Boilers be worked separately? **Yes**  
 Makers of Plates **Spencer - Newbman**  
 " Stay Bars **do**  
 " Rivets **Bolton Nut Co.**  
 " Furnaces **13 " Dighton.**  
 Greatest Internal Diam. of Boilers **16-2 3/8**  
 " Length " **12-5 1/8**  
 Square Feet of Heating Surface each Boiler **3001 sq. ft.**  
 " Grate " " **44.8 "**  
 No. of Safety Valves each Boiler **2** Rule Diam. Actual **3 1/4 "**  
 Are the Safety Valves fitted with Easing Gear? **Yes**  
 No. of Pressure Gauges, each Boiler **1** No. of Water Gauges **2**  
 " Test Cocks " " Salinometer Cocks **1**

Are the Water Gauges fitted direct to the Boiler shells or mounted on Piping?  
 Are the Water Gauges fitted direct to the Boiler shells or connected by Piping?  
 Are these Piping connected to Boilers by Cocks or Valves?  
 Are Blow-off Cocks or Valves fitted on Boiler Shells?  
 No. of Stitches of Shell Plating in each Boiler  
 Plates in each Stitch  
 Thickness of Shell Plates Approved  
 " in Boiler  
 Are the Rivets Iron or Steel?  
 Are the Longitudinal Seam Joints or Lap Joints?  
 Are the Butt Straps Single or Double?  
 Are the Double Butt Straps of equal width?  
 Thickness of outside Butt Straps  
 " inside  
 Are Longitudinal Seams Hand or Machine Riveted?  
 Are they Single, Double, or Triple Riveted?  
 No. of Rivets in a Pitch  
 Pitch of Rivet Heads  
 No. of Rows of Rivets in Centre Circumferential Seams  
 Are these Seams Hand or Machine Riveted?  
 Pitch  
 Pitch of Rivet Heads  
 No. of Rows of Rivets in Front End Circumferential Seams  
 Are these Seams Hand or Machine Riveted?  
 Pitch  
 Pitch of Rivet Heads  
 No. of Rows of Rivets in Back End Circumferential Seams  
 Are these Seams Hand or Machine Riveted?  
 Pitch  
 Pitch of Rivet Heads  
 No. of Rows of Rivets in Lower and Circumferential Seams  
 Are these Seams Hand or Machine Riveted?  
 Pitch  
 Pitch of Rivet Heads  
 No. of Rows of Rivets in Upper and Circumferential Seams  
 Are these Seams Hand or Machine Riveted?  
 Pitch  
 Pitch of Rivet Heads

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Are the Water Gauges fitted direct to the Boiler Shells or mounted on Pillars? *on pillars*

Are the Water Gauge Pillars fitted direct to the Boiler Shells or connected by Pipes? *Direct for*

Are these Pipes connected to Boilers by Cocks or Valves? *Cocks on For. Boiler*

Are Blow-off Cocks or Valves fitted on Boiler Shells? *Yes*

No. of Strakes of Shell Plating in each Boiler *One*

Plates in each Strake *Three*

Thickness of Shell Plates Approved *1 19/32*

" " in Boilers *1 19/32*

Are the Rivets Iron or Steel? *Steel*

Are the Longitudinal Seams Butt or Lap Joints? *Butt*

Are the Butt Straps Single or Double? *double*

Are the Double Butt Straps of equal width? *Yes*

Thickness of outside Butt Straps *1 3/8*

" inside " *1 3/8*

Are Longitudinal Seams Hand or Machine Riveted? *Machine*

Are they Single, Double, or Treble Riveted? *Treble*

No. of Rivets in a Pitch *5*

Diar. of Rivet Holes *1 19/32* Pitch *10 1/2*

No. of Rows of Rivets in Centre Circumferential Seams *✓*

Are these Seams Hand or Machine Riveted? *✓*

Diar. of Rivet Holes *✓* Pitch *✓*

No. of Rows of Rivets in Front End Circumferential Seams *Two*

Are these Seams Hand or Machine riveted? *Hand*

Diar. of Rivet Holes *1 19/32* Pitch *4.524*

No. of Rows of Rivets in Back End Circumferential Seams *Two*

Are these Seams Hand or Machine Riveted? *Machine*

Diar. of Rivet Holes *1 19/32* Pitch *4.524*

Size of Manholes in Shell *16" x 12"*

Dimensions of Compensating Rings *36 3/4 x 34 1/2 x 1 19/32 flanged*

*3 aft boilers by pipes for the fore. boiler.*



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Thickness of End Plates in Steam Space Approved

" " " " " in Boilers

Pitch of Steam Space Stays

Diar. " " " " Approved

" " " " " in Boilers

Material of " " "

How are Stays Secured?

Diar. and Thickness of Loose Washers on End Plates

" " Riveted " " "

Width " " Doubling Strips "

Thickness of Middle Back End Plates Approved

" " " " " in Boilers

Thickness of Doublings in Wide Spaces between Fireboxes

Pitch of Stays at

Diar. of Stays Approved

Threads per Inch

" " in Boilers

Material "

Are Stays fitted with Nuts outside?

Thickness of Back End Plates at Bottom Approved

" " " " " in Boilers

Pitch of Stays at Wide Spaces between Fireboxes

Thickness of Doublings in " "

Thickness of Front End Plates at Bottom Approved

" " " " " in Boilers

No. of Longitudinal Stays in Spaces between Furnaces

Pitch of Stays Approved

" " " " " in Boilers

Material

Thickness of Front End Plates Approved

" " " " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

Thickness of Doublings in

Stay Tubes at

Are Stay Tubes fitted with Nuts at Front End?

Thickness of Back End Plates Approved

" " " " " in Boilers

Pitch of Stay Tubes in Back End Plates

Plain

Thickness of Stay Tubes

Plain

External Diam. of Tubes

Material

Thickness of Furnace Plates Approved

" " " " " in Boilers

Smallest outside Diam. of Furnaces

Length between Tube Sheets

(Width of Combustion Chambers (Front to Back)

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Diar. of Stays Approved  $2''$  Threads per Inch  $6$   
 " " in Boilers  $2''$   $6$   
 Material *Steel*

Thickness of Front Tube Plates Approved

" " " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

Thickness of Doublings in " " "

" Stay Tubes at " " "

Are Stay Tubes fitted with Nuts at Front End?

Thickness of Back Tube Plates Approved

" " " in Boilers

Pitch of Stay Tubes in Back Tube Plates

" Plain "

Thickness of Stay Tubes

" Plain "

External Diar. of Tubes

Material "

Thickness of Furnace Plates Approved

" " " in Boilers

Smallest outside Diar. of Furnaces

Length between Tube Plates

Width of Combustion Chambers (Front to Back)

Thickness of " " Tops Approved

" " " in Boilers

Pitch of Screwed Stays in O.O. Tops

$1'' \times 1\frac{1}{4}''$   
 $1'' \times 1\frac{1}{4}''$   
 $7\frac{3}{8} \times 13\frac{1}{2}'' - 7\frac{3}{8} \times 13\frac{1}{2}''$   
 $\checkmark \times \checkmark$

$3/8$

*Yes and in some cases adjacent to waterway.*

$13/16''$

$13/16''$

$7\frac{3}{4}'' \times 7\frac{1}{2}''$

$3\frac{3}{4}'' \times 3\frac{1}{16}''$

$3/8'' \times 5/16''$

*8 W. C.*

$2\frac{5}{8}''$

*Iron*

$2\frac{1}{32}''$

$2\frac{1}{32}''$

$3 - 5\frac{1}{4}''$

$8 - 0 \times 8 - 1\frac{1}{4}''$

$3 - 6\frac{1}{4}$  outside

$1/16''$

$1/16''$

$7\frac{3}{4}'' \times 9''$

Diar. of Stayed Stays Approved  $1\frac{1}{2}''$  Threads per Inch  $6$   
 " " in Boilers  $1\frac{1}{2}''$   $6$   
 Material *Steel*

Thickness of Combustion Chamber Plates Approved

" " " " in Boilers

Pitch of Screwed Stays in O.O. Tops

Thickness of Doublings in " " "

" Stay Tubes at " " "

Are Stay Tubes fitted with Nuts at Front End?

Thickness of Combustion Chamber Plates Approved

" " " in Boilers

Pitch of Screwed Stays in O.O. Tops

Thickness of Doublings in " " "

" Stay Tubes at " " "

Are Stay Tubes fitted with Nuts at Front End?

Thickness of Combustion Chamber Plates Approved

" " " in Boilers

Pitch of Screwed Stays in O.O. Tops

Thickness of Doublings in " " "

" Stay Tubes at " " "

Are Stay Tubes fitted with Nuts at Front End?

Thickness of Combustion Chamber Plates Approved

" " " in Boilers

Pitch of Screwed Stays in O.O. Tops

Thickness of Doublings in " " "

" Stay Tubes at " " "

Diar. of Screwed Stays Approved

 $1\frac{3}{4}"$  Threads per Inch9  
9

" " " in Boilers

 $1\frac{3}{4}"$ 

Material " "

Steel

Thickness of Combustion Chamber Sides Approved

 $1\frac{1}{16}"$ 

" " " " in Boilers

 $1\frac{1}{16}"$ 

Pitch of Screwed Stays in C.C. Sides

 $9" \times 7\frac{3}{4}"$ 

Diar. " " Approved

Threads per Inch

9  
9

" " " in Boilers

 $1\frac{3}{4}"$ 

Material " "

Steel

Thickness of Combustion Chamber Backs Approved

 $1\frac{1}{16}"$ 

" " " " in Boilers

 $1\frac{1}{16}"$ 

Pitch of Screwed Stays in C.O. Backs

 $8\frac{1}{2}" \times 8\frac{1}{8}"$ 

Diar. " " Approved

Threads per Inch

9  
9

" " " in Boilers

 $1\frac{3}{4}"$ 

Material " "

Steel

Are all Screwed Stays fitted with Nuts inside C.O.?

Yes

Thickness of Combustion Chamber Bottoms

 $2\frac{1}{2}"$ 

No. of Girders over each Wing Chamber

Three  
Two

" " " Centre "

Depth and Thickness of Girders

 $12" \times 3\frac{1}{4}"$ 

Material of Girders

Steel

No. of Stays in each

Four

No. of Tubes, each Boiler

4448

Size of Lower Manholes

 $16" \times 12"$ 

No. VERTICAL DONKEY BOILERS.

No. of Boilers  
Type  
Greatest I.D. Diam.  
Height of Boiler Crown above the Grate  
Internal Radius of Dished Ends  
Description of Stays in Boiler Crown  
Diam. of Rivet Holes  
Height of Rivet Crown above the Grate  
Internal Radius of Dished Crown  
External Radius of Dished Crown  
Diam. of Crown Stays  
External Diam. of Rivet at Top  
Bottom  
Thickness  
No. of Water Tubes  
Material of Water Tubes  
Size of Manhole in Shell  
Dimensions of Compensating Ring  
Riveting outside each boiler  
Grate surface

SUPERHEATERS



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# No. 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.

Description of Superheaters

Where situated?

Which Boilers are connected to Superheaters?

Can Superheaters be shut off while Boilers are working?

No. of Safety Valves on each Superheater

Diar.

Are " " fitted with Blasing Gear?

Date of Hydraulic Test

Test Pressure

Date when Safety Valves set

Pressure on Valves

## MAIN STEAM PIPES

No. of Lengths

Material

Braced, Welded or Seamless

Internal Diar.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

No. of Lengths

Material

Braced, Welded or Seamless

Internal Diar.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure



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## MAIN STEAM PIPES.

No. of Lengths **10**  
 Material **L.W.S.**  
 Brazed, Welded or Seamless **W.I.d.d**  
 Internal Diam. **53"**  
 Thickness **5/16**  
 How are Flanges secured? **Secured**  
 Date of Hydraulic Test **(40571/22 - test 7/12/22)**  
 Test Pressure **650 lb. sq. in.**

No. of Lengths  
 Material  
 Brazed, Welded or Seamless  
 Internal Diam.  
 Thickness  
 How are Flanges secured?  
 Date of Hydraulic Test  
 Test Pressure

No. of Lengths  
 Material  
 Brazed, Welded or Seamless  
 Internal Diam.  
 Thickness  
 How are Flanges secured?  
 Date of Hydraulic Test  
 Test Pressure

## EVAPORATORS.

No. **1**  
 Material **W.I.d.d**  
 Brazed, Welded or Seamless **W.I.d.d**  
 Internal Diam. **53"**  
 Thickness **5/16**  
 How are Flanges secured? **Secured**  
 Date of Hydraulic Test **(40571/22 - test 7/12/22)**  
 Test Pressure **650 lb. sq. in.**

## FEED WATER FILTERS.

No. **1**  
 Material **W.I.d.d**  
 Brazed, Welded or Seamless **W.I.d.d**  
 Internal Diam. **53"**  
 Thickness **5/16**  
 How are Flanges secured? **Secured**  
 Date of Hydraulic Test **(40571/22 - test 7/12/22)**  
 Test Pressure **650 lb. sq. in.**



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## EVAPORATORS.

No. *1* Type *Hockings.* Tons per Day *35.*  
 Makers  
 Working Pressure Test Pressure Date of Test  
 Date of Test of Safety Valves under Steam

## FEED WATER HEATERS.

No. *One* Type *Direct Contact*  
 Makers *Weiss*  
 Working Pressure Test Pressure Date of Test

## FEED WATER FILTERS.

No. *One* Type *Gravity*  
 Makers *Hockings* Size  
 Working Pressure Test Pressure Date of Test

## LIST OF DONKEY PUMPS.

*Main feed pump*  
*" Circulating pump*  
*Ballast pump*  
*General Service pump*  
*Carbon feed pump*  
*Freshwater pump*  
*Motor driven emergency bilge pump.*



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## REFRIGERATORS.

No. of Machines  
 Makers *J. & C. Hall L<sup>d</sup> Dartford - Kent.*  
 Description *Duplex type, CO<sub>2</sub> Refrigerating plant.*

No. of Steam Cylinders, each Machine *2*. No. of Compressors *2* No. of Cranks *2*

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

or Independently *Independent brine pump  
 Circulating pump on machine.*

System of Refrigeration *CO<sub>2</sub>, brine through grids in rooms.*  
 „ Insulation *Cork & timber.*

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? *-*

Are Thermometer Tubes so arranged that Water cannot enter and freeze in them? *Yes*

Date of Test under Working Conditions *1<sup>st</sup> Feb. 1923.*

## 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.
<i>Meat. (Returns) room</i>	<i>60</i>	<i>-11</i>	<i>4<sup>3</sup>/<sub>4</sub> hrs</i>	
<i>Vegetable " room</i>	<i>60</i>	<i>-5</i>	<i>"</i>	
<i>Ice room "</i>	<i>60</i>	<i>-6</i>	<i>"</i>	
<i>Test. 1-15 pm to 9-0 pm.</i>				
<i>Actual Compartments</i>				
<i>Meat</i>	<i>60</i>	<i>9</i>	<i>-</i>	
<i>Vegetable</i>	<i>68</i>	<i>22</i>	<i>"</i>	

## NOTE

*Machine stopped from 5 till 6 pm owing to water being too low in dock water lit into dock at 6-0 pm. Ice mould cooled.*

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



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Positions of Auxiliary Switch Boards, with No. of Switches on each *None fitted*

Are Out-outs fitted as follows?—

On Main Switch Board, to Cables of Main Circuits

On Aux. " " each Auxiliary Circuit

Wherever a Cable is reduced in size

To each Lamp Circuit

To both Flow and Return Wires of all Circuits when the Double-Wire System is adopted

Are the Fuses of Standard Sizes?

Are all Switches and Cut-outs constructed of Non-inflammable Material?

Are they placed so as to be always and easily accessible?

Smallest Single Wire used, No. *1/044* S.W.G., Largest, No. *(Single) 1/044* S.W.G.

How are Conductors in Engine and Boiler Spaces protected?

" Saloons, State Rooms, &c., " ?

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp *Lead covered, armoured & braided*

(2) " passing through Bunkers or Cargo Spaces *ditto*

(3) " " Deck Beams or Bulkheads *Fibrous bushes*

Are all Joints in Cables properly soldered and thoroughly insulated so that the efficiency of the Cables

is unimpaired? *No coldered joints all mechanical joints*

Are all Joints in accessible positions, none being made in Bunkers or Cargo Spaces? *Yes*

Are all Hull Connections for Single-Wire Systems made with Screws of large Surface? *Double wire system*

Are the Dynamos, Motors, Main and Branch Cables, so placed that the Compasses are not injuriously

affected by them? *Yes.*

Have Tests been made to prove that this condition has been satisfactorily fulfilled? *Yes. on sea trial*

Has the Insulation Resistance over the whole system been tested? *Yes.*

What does the Resistance amount to? *0.5 megohms.* Ohms.

Is the Installation supplied with a Voltmeter? *Yes. on switchboard.*

" " " an Ampere Meter? *Yes. on switchboard.*

Date of Trial of complete Installation *5<sup>th</sup> Feb 1953* Duration of Trial *6 hours*

Have all the requirements of Section 42 been satisfactorily carried out? *Yes.*



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## 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.

affected by them?

Have Tests been made to prove that this condition has been satisfactorily fulfilled?

Has the Installation Resistance over the whole system been tested?

What does the Resistance amount to?

Is the Installation supplied with a Voltmeter?

an Amperes Meter?

Date of Trial of complete Installation

Have all the requirements of Section 12 been satisfactorily carried out?

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. "City of Canterbury"

as ascertained by *us* from personal examination

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

## Fees—

## MAIN BOILERS.

£ s. d.

H.S. *12004* Sq. ft. : :

G.S. *299.2* " : :

## DONKEY BOILERS.

H.S. — Sq. ft. : :

G.S. — " : :

£ : :

## ENGINES.

L.P.C. *148.3* Cub. ft. : :

£ : :

Testing, &c. ... : :

£ : :

Expenses ... : :

Total ... £ : :

It is submitted that this Report be approved,

*John Barr* for Chief Surveyor.

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

*25th July 1923*

Fees advised

Fees paid



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Secretary.

Fees -

U.S. 15004

2.995

DORSET HOUSE

U.S. 15004

U.S. 15004

Testing fee

Expenses

Total

It is submitted that this Report be approved

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

City of Canterbury

Test advised

Test not



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## D/G. coils

coil	Turns	Cable	Conn	Current amps
1 each	5	7/064		26
M. 2 section	4	19/052	Series	58
3 wireman	5	"	"	
4 wireman	9	"	"	58

FP	27	19/052	Series	29.9
	8	19/064		
QP	25	19/052	Series	
	7	19/064		

F1	14	7/064	Series	15.4
remains	5	7/064		
Q1	14	7/064		
	3	7/064		

187.3

D/G fitted controlled from bridge  
to answer D.G. E. 3.  
30<sup>th</sup> Nov. 1940.

S.B. Johnson



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