

No. 1581

TRANSFERRED TO
L. R. SYSTEM

THE BRITISH CORPORATION FOR THE SURVEY
AND

REGISTRY OF SHIPPING.

Report No.

1613

No. in Register Book

2859

S.S.

"SPERO"

Makers of Engines

EARLES S & E. CO. LTD.

Works No.

A. 238.

Makers of Main Boilers

EARLES S & E. CO. LTD.

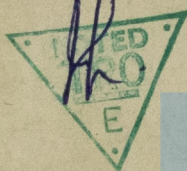
Works No.

A. 238.

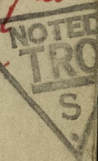
Makers of Donkey Boiler

Works No.

Noted in respect
of Electrical
Installation.



MACHINERY.



003401-003408-0004

No.

THE BRITISH CORPORATION FOR THE SURVEY

AND

REGISTRY OF SHIPPING.

Report No. *1613* No. in Register Book *2859*

Received at Head Office

24th January 1923

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the ~~Single Triple~~ *Single Triple* Screw "SPERO"

Official No. *146509* Port of Registry *Hull*

Registered Owners *ELLERMAN'S WILSON LINE LTD*

Engines Built by *EARLES S & E CO LTD*

at *HULL*

Main Boilers Built by *EARLES S & E CO LTD*

at *HULL*

Donkey

at

Date of Completion

12/22

First Visit *3.12.19* Last Visit *28.12.22* Total Visits *133*

RECIPROCATING ENGINES.

Works No. *A 238* No. of Sets *1* Description *Triple expansion*No. of Cylinders each Engine *3* No. of Cranks *3*Diams. of Cylinders *17 $\frac{3}{4}$ " 30 $\frac{1}{2}$ " 53"* Stroke *36"*Cubic feet in each L.P. Cylinder *45.96*Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr? *Yes.*" " " each Receiver? *Yes.*Type of H.P. Valves, *Piston valves, Solid rings*" 1st I.P. " *Piston Valves, Solid rings*" 2nd I.P. " *✓*" L.P. " *Double ported slide valve*" Valve Gear *Stevenson's link motion*" Condenser *Surface 2 flow*Cooling Surface *1850* sq. ft.Diameter of Piston Rods (plain part) *5 $\frac{1}{8}$ "* Screwed part (bottom of thread) *3.76*Material " *Mild Steel*Diam. of Connecting Rods (smallest part) *5 $\frac{1}{8}$ "* Material *Mild steel*" Crosshead Gudgeons *5 $\frac{3}{4}$ "* Length of Bearing *5 $\frac{1}{8}$ "* Material " "No. of Crosshead Bolts (each) *4* Diam. over Thrd. *2 $\frac{3}{8}$ "* Thrds. per inch *6* Material " "" Crank Pin " " *2* " *3 $\frac{1}{8}$ "* " *6* " " "" Main Bearings *6* Lengths *11 $\frac{1}{4}$ each* *5.7 $\frac{1}{2}$ total*" Bolts in each *2* Diam. over Thread *2 $\frac{5}{8}$ "* Threads per inch *6* Material *Mild Steel*" Holding Down Bolts, each Engine *62* Diam. *1 $\frac{1}{4}$ "* No. of Metal Chocks *62*Are the Engines bolted to the Tank Top or to a Built Seat? *Tank top*Are the Bolts tapped through the Tank Top and fitted with Nuts Inside? *Yes.*If not, how are they fitted? *✓*Connecting Rods, Forged by *Life Forge Co Ltd.*

Piston " " " " " "

Crossheads, " " " " " "

Connecting Rods, Finished by *Charles S & Co Ltd.*

Piston " " " " " "

Crossheads, " " " " " "

Date of Harbour Trial *2. 12. 22*" Trial Trip *12. 12. 22*Trials run at *River Humber*Were the Engines tested to full power under Sea-going conditions? *Yes.*If so, what was the I.H.P.? *1332*Revs. per min. *99*Pressure in 1st I.P. Receiver, *70* lbs., 2nd I.P., *✓* lbs., L.P., *12* lbs., Vacuum, *26* ins.Speed on Trial *12.5*

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

data:—

Builders' estimated I.H.P.

Revs. per min.

Estimated Speed *✓*

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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?

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

"	"	I.P.	"	"
"	"	L.P.	"	"
"	"	1st Reduction Shaft		
"	"	2nd "		
"	"	Propeller Shaft		

Total Shaft Horse Power

Date of Harbour Trial

" Trial Trip

Trials run at

Speed on Trial

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

DESCRIPTION OF INSTALLATION.



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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

Revs. per min. of Generators at Full Power

" " Motors "

" " Propellers "

Total Shaft Horse Power

Date of Harbour Trial

" Trial Trip

Trials run at

Makers of Turbines

" Generators

" Motors

" Reduction Gear

Turbine Spindles forged by

" Wheels forged or cast by

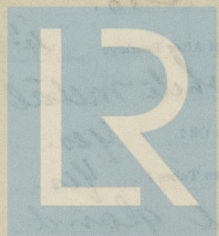
Reduction Gear Shafts forged by

" Wheels forged or cast by



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SHAFTING.

Are the Crank Shafts Built or Solid?

Built.

No. of Lengths in each

2

Angle of Cranks

120°

Diar. by Rule

Actual 10 $\frac{7}{8}$ "

In Way of Webs

11 $\frac{1}{8}$ "

" of Crank Pins

11 $\frac{1}{4}$ "

Length between Webs

11 $\frac{1}{4}$ "

Greatest Width of Crank Webs

21" at pin

22" at shaft

Thickness

7"

Least

" "

16" at centre

" "

7"

Diar. of ~~Keys~~ in Crank Webs1 $\frac{1}{4}$ "

Length

5 $\frac{1}{2}$ "

" Dowels in Crank Pins

1 $\frac{3}{8}$ "

Length

3 $\frac{1}{2}$ "

Screwed or Plain

Plain

No. of Bolts each Coupling

6

Diar. at Mid Length

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

Diar. of Pitch Circle

16 $\frac{1}{4}$ "

Greatest Distance from Edge of Main Bearing to Crank Web

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

Type of Thrust Blocks

Hornshoe

No. " Rings

5

Diar. of Thrust Shafts at bottom of Collars

10 $\frac{7}{8}$ "

No. of Collars

5

" " Forward Coupling

10 $\frac{7}{8}$ "

At Aft Coupling

10 $\frac{7}{8}$ "

Diar. of Intermediate Shafting by Rule

Actual 10 $\frac{1}{4}$ "

No. of Lengths

4

No. of Bolts, each Coupling

6

Diar. at Mid Length

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

Diar. of Pitch Circle

16 $\frac{1}{4}$ "

Diar. of Propeller Shafts by Rule

Actual 12"

At Couplings

10 $\frac{7}{8}$ "

Are Propeller Shafts fitted with Continuous Brass Liners?

No.

Diar. over Liners

☒

Length of After Bearings

4' 2"

Of what Material are the After Bearings composed?

White metal

Are Means provided for lubricating the After Bearings with Oil?

Yes.

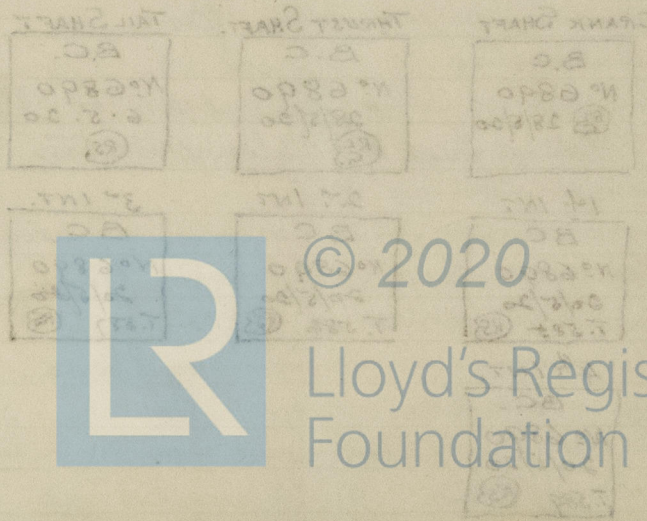
" " to prevent Sea Water entering the Stern Tubes?

Yes.

If so, what Type is adopted?

Cedewal gland.

SKETCH OF CRANK SHAFT.



No. of Blades each Propeller *4* Fitted or Solid? *Solid*
 Material of Blades *Cast iron* Boss *Cast Iron*
 Diam. of Propellers *13' 6"* Pitch *13' 3 1/8"* Surface (each) *57* S. ft.
 Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth

Crank Shafts Forged by *Life Forge Co Ltd.* Material *I. S.*
 " Pins " " " " "
 " Webs " " " " "
 Thrust Shafts " " " " "
 Intermed. " " " " "
 Propeller " " " " "
 Crank " Finished by *Life Forge Co Ltd.*
 Thrust " " " " "
 Intermed. " " " " "
 Propeller " " " " "

STAMP MARKS ON SHAFTS.

CRANK SHAFT

B.C.
 N° 6890
 (RL) 28/5/20

1 1/2 INT.
 B.C.
 N° 6890
 20/5/20
 T. 585 (RS)

4 1/2 INT.
 B.C.
 N° 6890
 20/5/20
 T. 589 (RS)

THRUST SHAFT.

B.C.
 N° 6890
 28/5/20
 (RL) (RS)

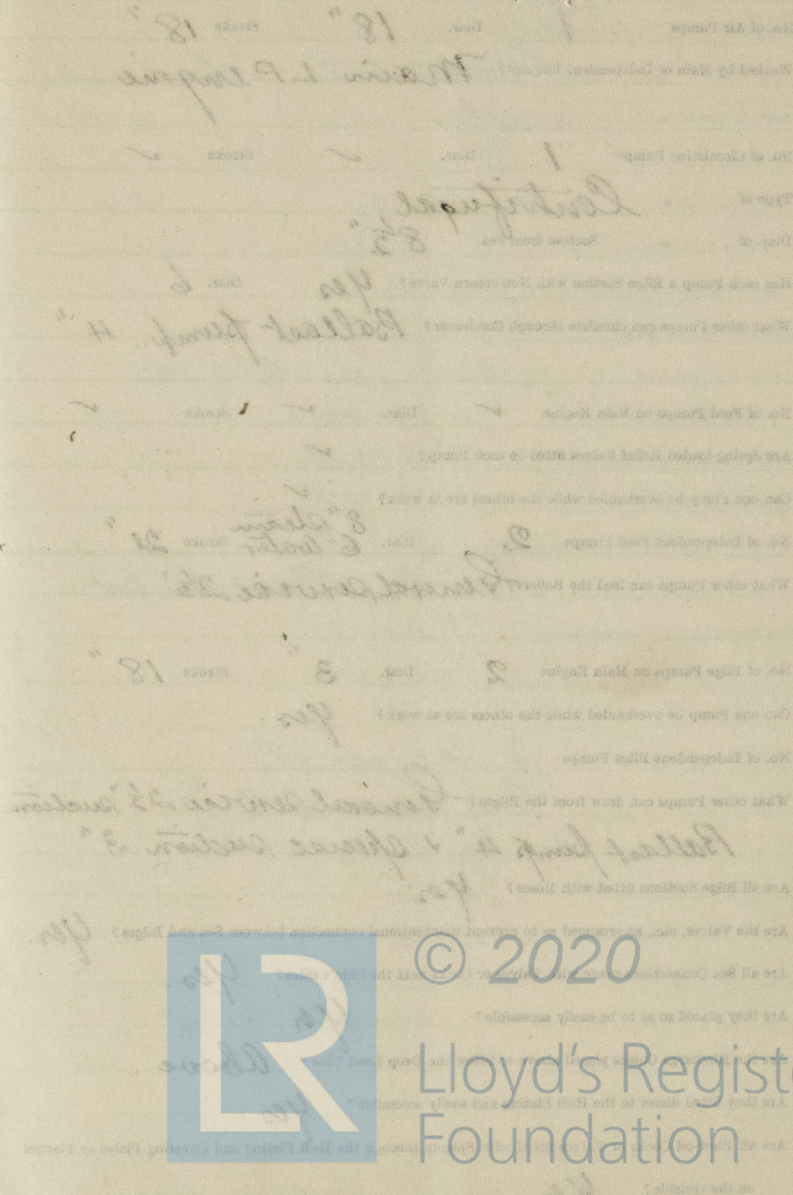
2 1/2 INT.
 B.C.
 N° 6890
 20/5/20
 T. 586 (RS)

TAIL SHAFT

B.C.
 N° 6890
 6.5.20
 (RS)

3 1/2 INT.
 B.C.
 N° 6890
 20/5/20
 T. 587 (RS)

SKETCH OF PROPELLER SHAFT.



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PUMPS, ETC.

No. of Air Pumps

1

Diar.

18"

Stroke

18"

Worked by Main or Independent Engines?

Main L.P. engine

No. of Circulating Pumps

1

Diar.

Stroke

Type of

Centrifugal

Diar. of

Suction from Sea

8½"

Has each Pump a Bilge Suction with Non-return Valve?

Yes

Diar.

6

What other Pumps can circulate through Condenser?

Ballast pump. 4"

No. of Feed Pumps on Main Engine

✓

Diar.

Stroke

Are Spring-loaded Relief Valves fitted to each Pump?

✓

Can one Pump be overhauled while the others are at work?

✓

No. of Independent Feed Pumps

2

Diar.

8" Steam
6" Water

Stroke

2½"

What other Pumps can feed the Boilers?

General service 2½"

No. of Bilge Pumps on Main Engine

2

Diar.

3"

Stroke

18"

Can one Pump be overhauled while the others are at work?

Yes.

No. of Independent Bilge Pumps

What other Pumps can draw from the Bilges?

General service 2½" suction
Ballast pump 4" + special suction 3"

Are all Bilge Suctions fitted with Roses?

Yes

Are the Valves, etc., so arranged as to prevent unintentional connection between Sea and Bilges?

Yes.

Are all Sea Connections made with Valves or Cocks next the Ship's sides?

Yes.

Are they placed so as to be easily accessible?

Yes.

Are the Discharge Chests placed above or below the Deep Load Line?

Above

Are they fitted direct to the Hull Plating and easily accessible?

Yes.

Are all Blow-off Cocks or Valves fitted with Spigots through the Hull Plating and Covering Plates or Flanges

on the Outside?

Yes.

BOILERS



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BOILERS.

Works No. *A 238.*

No. of Boilers *2* Type *Multitubular Cylindrical*

Single or Double-ended *Single*

No. of Furnaces in each *3.*

Type of Furnaces *Deighlom.*

Date when Plan approved *8. 12. 19.*

Approved Working Pressure *225 lbs.*

Hydraulic Test Pressure *387.5 lbs.*

Date of Hydraulic Test *~~22. 12. 20~~ 18/11/22*

„ when Safety Valves set *1. 12. 22*

Pressure at which Valves were set *225 + 5 lbs.*

Date of Accumulation Test *1. 12. 22*

Maximum Pressure under Accumulation Test *250 lbs.*

System of Draught *Howden, Closed ash pit.*

Can Boilers be worked separately? *Ys.*

Makers of Plates *J. Spencer*

„ Stay Bars *J. Spencer & Co.*

„ Rivets *Rivet Bolt & Nut Co. Ltd.*

„ Furnaces *John Brown & Co. Ltd.*

Greatest Internal Diam. of Boilers *14' 4"*

„ „ Length „ *12' 6"*

Square Feet of Heating Surface each Boiler *2450.*

„ „ Grate „ „ *~~57.75~~ 59 #*

No. of Safety Valves each Boiler *2* *Diam. 3"*

Are the Safety Valves fitted with Easing Gear? *Ys.*

No. of Pressure Gauges, each Boiler *No. of Water Gauges 2*

„ Test Cocks „ *✓* „ Salinometer Cocks *One*



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

on pillars direct

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

Are these Pipes connected to Boilers by Cocks or Valves?

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

Valves with shut off cocks.

No. of Strakes of Shell Plating in each Boiler

One

Plates in each Strake

3

Thickness of Shell Plates Approved

1 3/8"

" " in Boilers

1 3/8"

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

Diam. of Rivet Holes

1 7/16"

Pitch

9 3/8"

No. of Rows of Rivets in Centre Circumferential Seams

✓

Are these Seams Hand or Machine Riveted?

✓

Diam. of Rivet Holes

✓

Pitch

✓

No. of Rows of Rivets in Front End Circumferential Seams

Two

Are these Seams Hand or Machine riveted?

Hand

Diam. of Rivet Holes

1 3/8"

Pitch

3 3/4"

No. of Rows of Rivets in Back End Circumferential Seams

Two

Are these Seams Hand or Machine Riveted?

Machine

Diam. of Rivet Holes

1 3/8"

Pitch

3 3/4"

Size of Manholes in Shell

16" x 12"

Dimensions of Compensating Rings

3.4" x 2.7" x 1 3/8"



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Thickness of End Plates in Steam Space Approved

 $1\frac{9}{32}$ "

" " " " in Boilers

 $1\frac{9}{32}$ "

Pitch of Steam Space Stays

 $19 \times 18\frac{1}{4}$

Diar. " " " " Approved

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

Threads per Inch

6

" " " " in Boilers

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

6

Material of " " "

Steel

How are Stays Secured?

Double nuts & washers.

Diar. and Thickness of Loose Washers on End Plates

Riveted

Width " " Doubling Strips

Thickness of Middle Back End Plates Approved

 $15/16$ "

" " " " in Boilers

 $15/16$ "

Thickness of Doublings in Wide Spaces between Fireboxes

Pitch of Stays at

" " " "

 $14\frac{1}{4} \times 9 \times 8\frac{1}{4}$

Diar. of Stays Approved

 $1\frac{3}{8}$ "

Threads per Inch

10

" " in Boilers

 $1\frac{7}{8}$ "

10

Material "

Steel

Are Stays fitted with Nuts outside?

Yes.

Thickness of Back End Plates at Bottom Approved

 $15/16$ "

" " " " in Boilers

 $15/16$ "

Pitch of Stays at Wide Spaces between Fireboxes

 $14\frac{1}{4}$ "

Thickness of Doublings in

✓

Thickness of Front End Plates at Bottom Approved

 $7/8$ "

" " " " in Boilers

 $7/8$ "

No. of Longitudinal Stays in Spaces between Furnaces

3



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Diam. of Stays Approved $2\frac{1}{2} \times 2\frac{1}{4}$ Threads per Inch 7
 " " in Boilers $2\frac{1}{2} \times 2\frac{1}{4}$ 7
 Material " Steel

Thickness of Front Tube Plates Approved $\frac{7}{8}$ "
 " " " in Boilers $\frac{7}{8}$ "
 Pitch of Stay Tubes at Spaces between Stacks of Tubes $13" \times 7\frac{1}{2}"$
 Thickness of Doublings in " " "
 " Stay Tubes at " " " $\frac{3}{8}"$
 Are Stay Tubes fitted with Nuts at Front End? Yes.

Thickness of Back Tube Plates Approved $\frac{7}{8}"$
 " " " in Boilers $\frac{7}{8}"$
 Pitch of Stay Tubes in Back Tube Plates $11\frac{7}{16}" \times 7\frac{1}{2}"$
 " Plain " $3\frac{1}{16}" \times 3\frac{3}{4}"$
 Thickness of Stay Tubes $\frac{5}{16}"$
 " Plain " 8 W.G.
 External Diam. of Tubes $2\frac{1}{2}"$
 Material " Iron

Thickness of Furnace Plates Approved $23/32"$
 " " " in Boilers $23/32"$
 Smallest outside Diam. of Furnaces $3' 7\frac{7}{16}"$
 Length between Tube Plates $8' 2"$

Width of Combustion Chambers (Front to Back) $3' 2\frac{13}{32}"$
 Thickness of " " Tops Approved $23/32"$
 " " " in Boilers $23/32"$
 Pitch of Screwed Stays in C.C. Tops $8\frac{3}{4}" \times 9"$



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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

None fitted.

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 Raising Gear?

Date of Hydraulic Test

Test Pressure

Date when Safety Valves set

Pressure on Valves

MAIN STEAM PIPES.



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MAIN STEAM PIPES.

No. of Lengths

4

Material

Steel

Brazed, Welded or Seamless

Seamless

Internal Diam.

4"

Thickness

 $\frac{1}{4}$ "

How are Flanges secured?

Expanded into grooves.

Date of Hydraulic Test

8.12.22

Test Pressure

675 lbs.

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



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EVAPORATORS.

No. *one* Type *Vertical* Tons per Day *15*
 Makers *G & J. Weir Ltd*
 Working Pressure *15 lb* Test Pressure *Subs 30 lb 450* Date of Test *5.10.1920*
 Date of Test of Safety Valves under Steam *2/12/22* B

FEED WATER HEATERS.

No. *1* Type *Vertical, Direct-Contact Type*
 Makers *Clark Chapman*
 Working Pressure *-* Test Pressure *-* Date of Test *12.12.22*

FEED WATER FILTERS.

No. *1* Type *Cascade* Size *N 2*
 Makers *Contralflow Condenser Co.*
 Working Pressure *✓* Test Pressure *✓* Date of Test *12.12.22*

LIST OF DONKEY PUMPS.

1 Main Feed Pump. Clark Chap
 Size. *8" x 6" x 21" Stroke.*
 Pumps from. *Holwell, heater, sea + boilers*
 " to *Boilers + heater*
1 Main Aux. Feed Pump. Clark Chapman.
 Size *8" x 6" x 21" Stroke*
 Pumps from *Holwell, heater, condensers, F.W. tanks Ballast*
 " to *Boilers + heater*
1 Ballast Pump. Amos & Smith Ltd.
 Size. *7 1/4" x 8" x 8" Duplex.*
 Pumps from. *tanks, bilges, sea, + Special bilge.*
 " to *Deck, overboard, main + main condenser.*
1 General Service Pump. Amos & Smith Ltd.
 Size *6 1/4" x 4 3/4" x 6" Stroke Duplex.*
 Pumps from *Boilers, sea, bilges, float tank, F.W. tanks.*
 " to *Boilers, main condenser Deck overboard*
 + *CO₂ Condenser.*

Fresh water Pump. 2. Flurns.
 Size *2 1/2" x 3" x 14" Stroke Single acting water pump.*
 Pumps from *tanks F.W.*
 " " *Deck*



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SPARE GEAR.

No. of Top End Bolts.	2	No. of Bot. End Bolts.	2	No. of Cylinder Cover Studs	6
" Coupling Bolts	6	" Main Bearing Bolts	2	" Valve Chest	-
" Junk Ring Bolts	6	" Feed Pump Valves	1 Set	" Bilge Pump Valves	1 set
" H.P. Piston Rings	-	" L.P. Piston Rings	-	" L.P. Piston Rings	-
" " Springs	1 Set	" " Springs	1 Set	" " Springs	1 Set
" Safety Valve	1	" Fire Bars	1/2 Set	" Feed Check Valves	1 main 1 donkey
" Piston Rods	-	" Connecting Rods	-	" Valve Spindles	1 head valve 1 set valves
" Air Pump Rods	1 + guide	" Air Pump Buckets	-	" Air Pump Valves	1 set valves
" Cir. "	-	" Cir. "	-	" Cir. "	-
" Crank Shafts	-	" Crank Pin Bushes	1 pair	" Crosshead Bushes	-
" Propeller Shafts	-	" Propellers	1	" Propeller Blades	-
" Boiler Tubes	6	" Condenser Tubes	50	" Condenser Perrules	20

OTHER ARTICLES OF SPARE GEAR:-

100 Condenser packings.

6 boiler stay nuts

1 set furnace front baffles.

1 black bridge complete

2 donkey feed pump valves.

1 escape valve ^{small} for each size

1 ecc. strap complete with bolts

1 set. valve gear with valve

1 set. piston rings

1 piston rod with brasses

1 set. bottom end brasses

1 set. top end bolts & nuts

1 set. bottom " " "

for fan
engine

1 impeller

1 " shaft.

1 set. piston rings

1 set. bottom end brasses

1 set. bottom end bolts & nuts

1 set. valve gear with valve

1 piston rod.

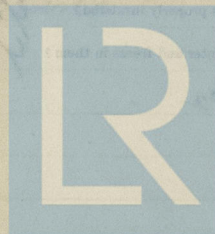
Circulating
pump

1 set. gauge glasses

70 bolts nuts washers etc. Iron

12 " " " " brass

Various plates, bars etc.



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REFRIGERATORS.

No. of Machines

one

Capacity of each

54000 @ 25°

Makers

The Haslam Foundry & Eng. Co. Ltd.

Description

*Vertical Type No 14.**14" x 10" Stroke**4" x 10" Stroke*

No. of Steam Cylinders, each Machine

1

No. of Compressors

1

No. of Cranks

2

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

or Independently

*Brine Pump 6" x 6 1/2 x 6" stroke Duplex.
for brine circulation, Independent.
Circ. Pump on Refrigerating machine.*

System of Refrigeration

Co₂

Insulation

Silicate Cotton.

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

8/12/32

RESULTS OF TRIALS.

COMPARTMENT.	Temp. at beginning of Trial.	Temp. at end of Trial.	Time required to obtain this Result.	Rise of Temp. after 4 hours.
<i>Started 10 am. Temp 3 pm.</i>				
<i>No 1 Tween deck</i>	<i>42°</i>	<i>25°</i>	<i>5 hrs.</i>	
<i>No 2 " "</i>	<i>"</i>	<i>24°</i>	<i>"</i>	
<i>No 2 lower hold.</i>	<i>"</i>	<i>26°</i>	<i>"</i>	
<i>No 3 " "</i>	<i>"</i>	<i>23°</i>	<i>"</i>	
<i>No 3 Tween decks</i>	<i>"</i>	<i>24°</i>	<i>"</i>	
<i>Temp 8 pm.</i>				
<i>No 1 Tween decks</i>	<i>25°</i>	<i>18°</i>	<i>5 hrs.</i>	<i>7°</i>
<i>" 2 " "</i>	<i>24°</i>	<i>17°</i>	<i>"</i>	<i>7°</i>
<i>" 2 lower Hold</i>	<i>26°</i>	<i>19°</i>	<i>"</i>	<i>6°</i>
<i>" 3 " "</i>	<i>23°</i>	<i>16°</i>	<i>"</i>	<i>9°</i>
<i>" 3 Tween decks</i>	<i>24°</i>	<i>17°</i>	<i>"</i>	<i>9°</i>
<i>No Certificate required</i>				

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

usual spares for this type of machine.



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ASIAN TO RETURN

ELECTRIC LIGHTING

Installation Fitted by

Charles S. & E. Co. Ltd.

No. and Description of Dynamos

One, Compound wound.

Makers of Dynamos

Campbell & Isherwood Ltd.

Capacity

75

Amperes, at

100

Volts,

350

Revs. per Min.

Current Alternating or Continuous

Continuous

Single or Double Wire System

Double.

Position of Dynamos

Starb. Side, Engine room platform

Main Switch Board

"

"

"

"

"

"

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

6.

Particulars of these Circuits:—

Circuit.	Number of Lights.	Candle Power.	Current Required. Amps.	Size of Conductor.	Current Density.	Conductivity of Conductor.	Insulation Resistance per Mile.
1. Eng. & Bl. room	26	26	8.44	7.064	1000	98%	60000.
2 Wireless	-	-	5.0	7.044	"	"	"
3 Cargo & fore.	34	16	15.3	7.083	"	"	"
4 Navigation	9	32+10	5.82	7.044	"	"	"
5 Medicine & aff. deck	37	26	10.1	7.083	"	"	"
6 Saloon & state rooms	64	26	19.2	19.044	"	"	"

Total No. of Lights

170

No. of Motors driving Fans, &c.

No. of Heaters

Current required for Motors and Heaters

2.35 Amps.



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Positions of Auxiliary Switch Boards, with No. of Switches on each

²⁶
 1 Middle
 Platform Engine room .8.
 2nd Pantry 4. 3rd Chart House 24
 4th Bottom platform Post. 6.

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 Size?

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

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

Smallest Single Wire used, No. 18 SWG S.W.G., Largest, No. 16 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

(2) " passing through Bunkers or Cargo Spaces

(3) " " Deck Beams or Bulkheads

Are all Joints in Cables properly soldered and thoroughly Insulated so that the efficiency of the Cables is unimpaired? No joints

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

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

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.

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

What does the Resistance amount to?

200,000 Ohms.

Is the Installation supplied with a Voltmeter?

" " " an Ampere Meter?

Date of Trial of complete Installation

12/12/22 Duration of Trial 8 hours



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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. *Yes.*

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. *"Spero"*

as ascertained by *me* from personal examination

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

Fees—

MAIN BOILERS.

H.S. *49 00* Sq. ft. : :

G.S. *118 0* " : :

DONKEY BOILERS.

H.S. *✓* Sq. ft. : :

G.S. *✓* " : :

£ : :

ENGINES.

L.P.C. *45 96* Cub. ft. : :

£ : :

Testing, &c. ... : :

£ : :

Expenses ... : :

Total ... £ : :

It is submitted that this Report be approved,

Geo Barr for Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the *21st February 1923*

Fees advised

Fees paid



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Secretary.

GENERAL ACCOUNT

MAINTENANCE

REPAIRS

REPAIRS

REPAIRS

REPAIRS

REPAIRS

REPAIRS

REPAIRS

REPAIRS

REPAIRS

REPAIRS

It is submitted that this Report be approved.

REPAIRS

Approved by the Committee for the Year of M.E.S. of the

REPAIRS

REPAIRS

Dates of Visits

3.12.19	14.6.20	29.11.20
9.12.19	17.6.20	1.12.20
17.12.19	21.6.20	6.12.20
31.12.19	23.6.20	8.12.20
7.1.20	5.7.20	9.12.20
14.1.20	14.7.20	13.12.20
16.1.20	19.7.20	15.12.20
20.1.20	26.7.20	22.12.20
23.1.20	16.8.20	30.12.20
27.1.20	20.8.20	4.1.21
3.2.20	30.8.20	10.1.21
10.2.20	20.9.20	17.1.21
17.2.20	29.9.20	20.1.21
1.3.20	6.10.20	27.1.21
4.3.20	11.10.20	31.1.21
9.3.20	14.10.20	7.2.21
29.3.20	18.10.20	16.2.21
1.4.20	22.10.20	17.2.21
7.4.20	25.10.20	23.2.21
9.4.20	27.10.20	28.2.21
16.4.20	1.11.20	7.3.21
28.4.20	4.11.20	15.3.21
3.5.20	8.11.20	18.3.21
26.5.20	12.11.20	30.3.21
31.5.20	15.11.20	8.4.21
2.6.20	18.11.20	11.4.21
4.6.20	22.11.20	13.4.21
8.6.20	26.11.20	15.4.21

Table of Vint

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15. 2. 22	16. 11. 22
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15. 3. 22	28. 11. 22
31. 3. 22	1. 12. 22
3. 4. 22	2. 12. 22
12. 4. 22	5. 12. 22
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20. 6. 22	12. 12. 22
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18. 7. 22	14. 12. 22
34. 7. 22	28. 12. 22
31. 7. 22	
16. 8. 22	
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27. 9. 22	
3. 10. 22	
9. 10. 22	
18. 10. 22	

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25.11.93	25.11.10
25.11.94	25.11.10
25.11.95	25.11.10
25.11.96	25.11.10
25.11.97	25.11.10
25.11.98	25.11.10
25.11.99	25.11.10
25.11.100	25.11.10



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