

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.

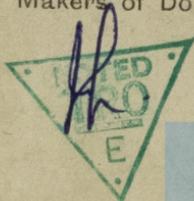
Works No.

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* 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*

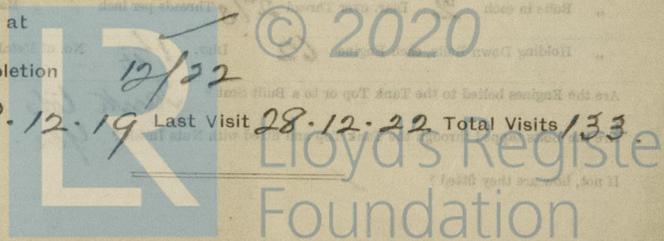
at *HULL*

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*
 Diars. 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.?

" " " each Receiver?

Type of H.P. Valves,

" 1st I.P. "

" 2nd I.P. "

" L.P. "

" Valve Gear

" Condenser

Diameter of Piston Rods (plain part)

Screwed part (bottom of thread)

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 " "

" "

" "

" "

" "

Material

" Main Bearings

" "

Lengths

" "

" "

" Bolts in each

" "

Diar. over Thread

Threads per inch

Material

" Holding Down Bolts, each Engine

" "

Diar.

No. of Metal Checks

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?

Connecting Rods, Forged by

Piston " "

Crossheads, " "

Connecting Rods, Finished by

Piston " "

Crossheads, " "

Date of Harbour Trial

" Trial Trip

Trials run at

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

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

Revs. per min.

Pressure in 1st I.P. Receiver,

70 lbs., 2nd I.P.,

lbs., L.P.,

12 lbs., Vacuum, 26 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 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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H

TURBINE ENGINEER

No. of L.P.	No. of I.P.	No. of H.P.	Type of Turbine

Are the Propeller Shafts driven direct by the Turbine or through gearing?

In single or Double Reduction Gear employed?

Describe the make of H.P. Turbine at full power

1. H.P. " " " "

2. I.P. " " " "

3. H.P. " " " "

4. I.P. " " " "

Propeller Shaft

Total shaft horse power

Date of Harbour Trial

1914

Location of

Speed in knots

Turbine engine worked by

What material is used in

Reduction Gear shafts fitted by

What material is cast in

DESCRIPTION OF INSTALLATION

TURBO-ELECTRIC PROPELLING MACHINERY

No. of Turbo-Generator Sets	Capacity of each

Type of Turbine employed	Description of Installation

Are the Propeller Shafts driven direct by the Turbine or through gearing?

In single or Double Reduction Gear employed?

Describe the make of H.P. Turbine at full power

1. H.P. " " " "

No. of Motors driving Propeller Shafts

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

In single or Double Reduction Gear employed?

Description of Motor

Describe the make of Turbine at full power

1. H.P. " " " "

Total shaft horse power

Date of Harbour Trial



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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 10 in

Thickness

7"

Least " "

16" at centre

"

*7"*Diar. of ~~Keys~~ ^{Dowels} in Crank Webs*1 $\frac{1}{4}$ "*

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

 $\frac{1}{4}$ "

Type of Thrust Blocks

Horseshoe

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.

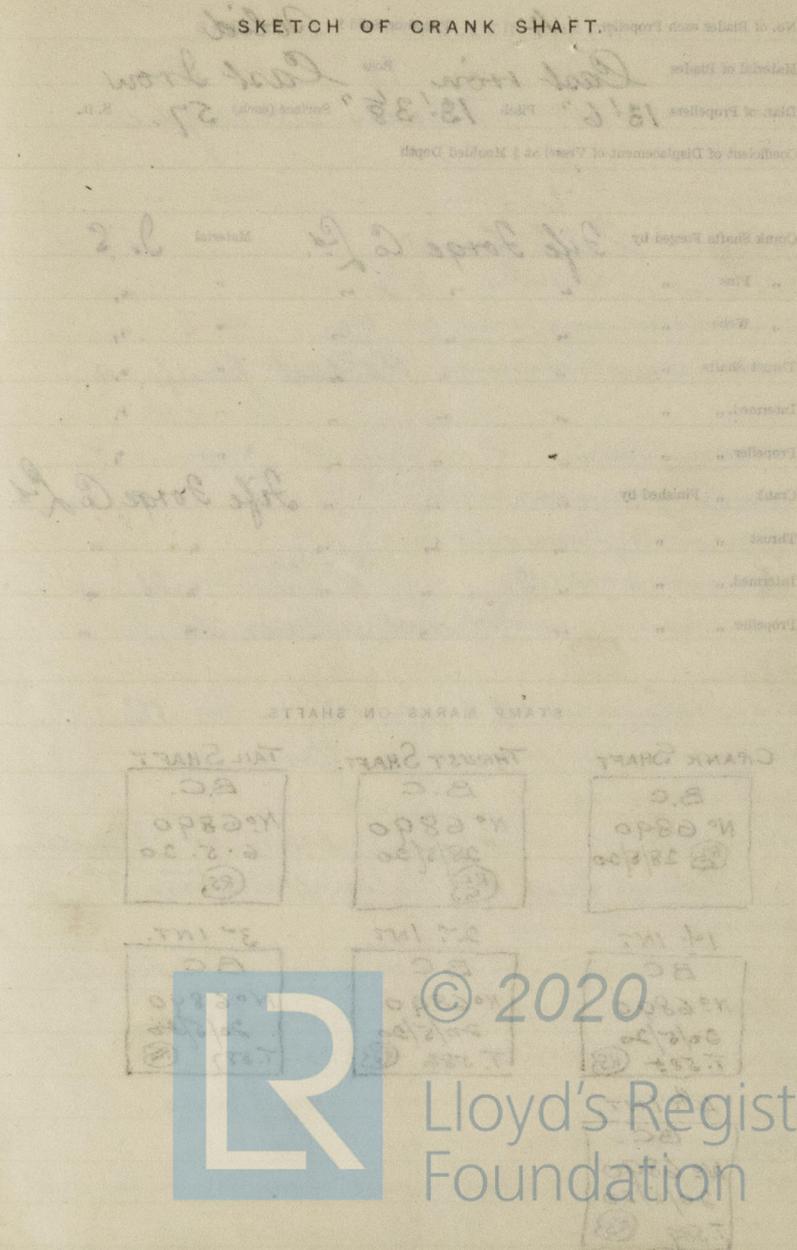
" " to prevent Sea Water entering the Stern Tubes?

Yes.

If so, what Type is adopted?

Cedewal gland.

SKETCH OF CRANK SHAFT



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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 $\frac{3}{4}$ Moulded Depth

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

STAMP MARKS ON SHAFTS.

CRANK SHAFT

B.C.
 N° 6890
 (RL) 28/5/20

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

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

THRUST SHAFT.

B.C.
 N° 6890
 28/5/20
 (RL) (S)

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

TAIL SHAFT

B.C.
 N° 6890
 6.5.20
 (RS)

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

SKETCH OF PROPELLER SHAFT.

Handwritten sketches and notes on the right page, including a diagram of a propeller shaft and various annotations.



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 *Dayblom.*

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 ashpit.*

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

„ Test Cocks „

No. of Water Gauges *2*

„ 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? *direct*

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? *Double*

No. of Rivets in a Pitch *5*

Diar. 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?

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 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*

Diar. 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



Diar. of Screwed Stays Approved

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

Threads per Inch 10

" " " in Boilers

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

10

Material " "

Steel

Thickness of Combustion Chamber Sides Approved

 $2\frac{3}{32}$ "

" " " " in Boilers

 $2\frac{3}{32}$ "

Pitch of Screwed Stays in O.C. Sides

 $9" \times 8\frac{3}{8}" + 9\frac{1}{2}" \times 8\frac{3}{8}"$

Diar. " " Approved

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

Threads per Inch 10

" " " in Boilers

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

10

Material " "

Steel

Thickness of Combustion Chamber Backs Approved

 $2\frac{3}{32}$ "

" " " in Boilers

 $2\frac{3}{32}$ "

Pitch of Screwed Stays in O.C. Backs

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

Diar. " " Approved

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

Threads per Inch 10

" " " in Boilers

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

10

Material " "

Steel

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

Yes.

Thickness of Combustion Chamber Bottoms

 $2\frac{7}{32}$ "

No. of Girders over each Wing Chamber

4

" " " Centre "

2

Depth and Thickness of Girders

 $10\frac{3}{4}" \times 7\frac{1}{8}"$ double plate.

Material of Girders

Steel

No. of Stays in each

3.

No. of Tubes, each Boiler

374

Size of Lower Manholes

 $16" \times 12"$

VERTICAL DONKEY BOILERS

No. of Boilers	Type	Height	Description of Boiler Crown over Fire Grate	Are Boiler Crown Joints or Dished?	Internal Radius of Dished Boilers	Clearance of Boilers in Boiler Crown	Clearance of Boilers above Fire Grate	Are Boiler Crown Joints or Dished?	Internal Radius of Dished Boilers	No. of Crown Tubes	Internal Dia. of Boilers at Top	No. of Water Tubes	Material of Water Tubes	Size of Manhole in Shell	Dimensions of Connections, etc.	Horizontal distance, each boiler

SUPERHEATERS

Description of Superheaters	Where installed?	Which boilers are connected?	Can superheaters be shut off while boilers are working?	Are they fitted with safety valves?	Material of Superheaters	Pressure on Valves



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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 Lasing 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

[Faint, mostly illegible handwritten notes and diagrams on page 31, including terms like 'EVAPORATORS', 'FEED WATER HEATERS', and 'FEED WATER FILTERS'. A circled 'B' is visible in the upper left quadrant.]



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EVAPORATORS.

No. *one* Type *Vertical* Tons per Day *15*
 Makers *G & J. Weir Ltd*
 Working Pressure *15 lbs* Test Pressure *Subs 30 lbs 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 *Contraflow Condenser Co.*
 Working Pressure *✓* Test Pressure *✓* Date of Test *12-12-22*

LIST OF DONKEY PUMPS.

Impeller
 1 Main Feed Pump, Clark Chap
 Size. $8" \times 6" \times 21"$ Stroke.
 Pumps from. Hotwell, heater, sea + boilers
 " to Boilers + heater
 1 Main Aux. Feed Pump, Clark Chapman.
 Size $8" \times 6" \times 21"$ stroke
 Pumps from Hotwell, heater, ^{condenser} F.W. tanks ballast ^{line}
 " to Boilers + heater
 1 Ballast Pump. Amos & Smith Ltd.
 Size. $7\frac{1}{4}" \times 8" \times 8"$ Duplex.
 Pumps from. tanks, bilges, sea, + Special bilge.
 " to Deck, overboard, main + ^{main} condenser
 1 General Service Pump. Amos & Smith Ltd.
 Size $6\frac{1}{2}" \times 4\frac{3}{4}" \times 6"$ Stroke Duplex.
 Pumps from Boilers, sea, bilges, float tank, F.W. tanks.
 " to Boilers, ^{main} condenser Deck overboard
 + CO₂ Condenser.
 Fresh water Pump. J. Flurns.
 Size $2\frac{1}{2}" \times 3\frac{1}{2}" \times 4"$ Stroke Single acting wale pump.
 Pumps from tanks F.W.
 " " Deck



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SPARE GEAR

No. of Top End Bolts.	No. of Bot. End Bolts.	No. of Cylinder Cover Studs
2	2	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 values
" Air Pump Rods 1 + guide	" Air Pump Buckets -	" Air Pump Valves 1 set values
" 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 back bridge complete

2 donkey feed pump valves.

1 escape valve ^{small} for each size

1 set strap complete with bolts

1 set value 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

" " shaft.

1 set piston rings

1 set bottom end brasses

1 set bottom end bolts & nuts

1 set value gear with valve

1 piston rod.

1 set gauge glasses

70 bolts nuts washers etc. Iron

12 " " " " brass

Various plates, bars etc.

Circulating
pump

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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, Independant.
 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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No. of Lights	Wattage	Volts	Amperes	Notes
1	26	100	0.26	Eng. + Bl. Room
2	-	-	-	Wireless
3	34	100	0.34	Cargo + fore.
4	9	100	0.09	Navigation
5	37	100	0.37	Medicine + aff. Deck
6	64	100	0.64	Saloon + State rooms

ELECTRIC LIGHTING

Installation Fitted by

Charles S. & E. Co. Ltd.

No. and Description of Dynamo

One, Compound wound.

Makers of Dynamo

Campbell & Isherwood Ltd.

Capacity

75 Amperes, at 100 Volts, 350 Revols. per Min.

Current Alternating or Continuous

Continuous

Single or Double Wire System

Double.

Position of Dynamo

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	10000 Amp.	98%	Goodly.
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. 1 No. of Heaters

Current required for Motors and Heaters 2.35 Amper.



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

at
1 Middle

Platform Engine room .8.
2nd Platform 4. 3rd Chart House 4
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 Sizes?

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? *Yes.*" " " an Ampere Meter? *Yes.*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.
 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 00* " : :

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 1973*

Fees advised

Fees paid



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 Secretary.

GENERAL CONSTRUCTION

Total

Dates of Visits

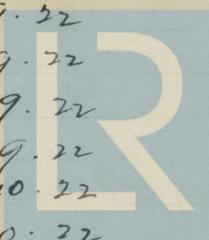
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