

No. 2311

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 2291 No. in Register Book 3646

" S U K H A "

S.S.

Makers of Engines

Cumtore Dock & Co. Ltd.

Works No.

353.

Makers of Main Boilers

Richardson Westgarth & Co. Ltd.

Works No.

D. 195

Makers of Donkey Boiler

Works No.

MACHINERY.



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No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. No. in Register Book

Received at Head Office,

18 December 1929

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the ~~Single Screw~~ ^{Whaler} ~~Cabin Quadrant~~ ^{"Cukha"}

Official No. 160666 Port of Registry ^{Tutu.}

Registered Owners

The South Georgia Co. Ltd.

Engines Built by

Smith's Dock Co. Ltd.

at

South Bank-on-Sea.

Main Boilers Built by

Ridgway Westgarth Co. Ltd.

at

Hullhead.

Donkey " " " "

at

Date of Completion

7-29.

First Visit

14-5-29

Last Visit

5-7-29.

Total Visits

30

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RECIPROCATING ENGINES

Works No. **353**No. of Sets **1**Description **Triple expansion
S.C. Berkes.**No. of Cylinders each Engine **3**No. of Cranks **3**Diars. of Cylinders **14"-23"-39"**Stroke **24"**Cubic feet in each L.P. Cylinder **46.6**

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

" " each Receiver?

Type of H P. Valves,

1st L.P. "

2nd L.P.,

L.P. "

" Valve Gear

" Condenser

Diameter of Piston Rods (plain part)

Cooling Surface sq. ft.
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 " "

" Main Bearings

Lengths

" Bolts in each

Diar. over Thread

Threads per inch

Material

" Holding Down Bolts, each Engine

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?

Connecting Rods, Forged by **Brown Bros.**

Piston " "

Crossheads, " "

Connecting Rods, Finished by **Cuthbert Shc.**

Piston " "

Crossheads, " "

Date of Harbour Trial **4-7-29.**" Trial Trip **5-7-29.**Trials run at **In North Sea.**Were the Engines tested to full power under Sea-going conditions? **yes.**

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

903.Revs. per min. **157**Pressure in 1st I.P. Receiver, **62** lbs., 2nd I.P.,lbs., L.P., **11** lbs., Vacuum, **25** ins.Speed on Trial **no speed taken.**

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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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	}	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

Revol. 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.I.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.



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No. of Blades each Propeller

Fitted or Solid?

Material of Blades

Boss

Diarr. of Propellers

Pitch

Surface (each

S. ft.)

Coefficient of Displacement of Vessel at 1/2 Moulded Depth

Crank Shafts Forged by

Yule York Co.

Material

Is.

„ Pins

„ Webs

Thrust Shafts

Intermed. „

Propeller „

Crank „ Finished by

Thrust „

Intermed. „

Propeller „

STAMP MARKS ON SHAFTS.

*Crank, Thrust,
Sail Shafts:-*

*B.C.
No 680
24-5-29.
R.S.*

SKETCH OF PROPELLER SHAFT.

24-5-29

No. of Air Pumps
Worked by Halls or Independent Engines?
No. of Circulating Pumps
Type of
Dist. of
Dist. of
Dist. of
No. of Lead Pumps on Main Engines
Are Spring-loaded Relief Valves fitted to each pump?
Can one Pump be overhauled while the others are at work?
No. of Independent Lead Pumps
What other Pumps can load the rollers?
No. of Air Pumps on Main Engines
Can one Pump be overhauled while the others are at work?
No. of Independent Air Pumps
What other Pumps can draw from the rollers?
Are all Air Pumps fitted with Hoses?
Are the Valves etc. connected to the rollers?
Are all the Connections made with the valves on rollers and the rollers?
Are they placed so as to be easily accessible?
Are the rollers placed in front of the propeller and lead?
Are they fitted direct to the link fitting and easily accessible?
Are all the rollers connected to the link fitting and bearing plates or flanges on the rollers?



PUMPS, ETC.

No. of Air Pumps Diar. Stroke

Worked by Main or Independent Engines?

No. of Circulating Pumps Diar. Stroke

Type of " "

Diar. of " Suction from Sea "

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

What other Pumps can circulate through Condenser?

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 Diar. Stroke

What other Pumps can feed the Boilers?

No. of Bilge Pumps on Main Engine Diar. Stroke

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

No. of Independent Bilge Pumps

What other Pumps can draw from the Bilges?

Are all Bilge Suctions fitted with Roses?

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

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

Are they placed so as to be easily accessible?

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

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

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

Same as before

BC
N° 680
24-5-19
R.S.

BOILERS

No. of Boilers

Type of Boilers

Height or Double-ended

No. of Furnaces in each

Type of Furnaces

Date when Plan approved

Approved Working Pressure

Hydraulic Test Pressure

Date of Hydraulic Test

When Safety Valves set

Pressure at which Valves were set

Date of Accumulation Test

Minimum Pressure under Accumulation Test

System of Drafting

Can Boilers be worked separately?

Material of Plates

Size of Flues

Rivets

Furnaces

Greatest Internal Diam. of Boilers

Space bet. of Rivets where each Boiler

Are the Rivets fitted with Dressing (cont.)

Are the Rivets fitted with Dressing (cont.)

Ballonometric Cocks

Test Cocks

192

1/10

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BOILERS

Works No. *D 195*

No. of Boilers *1* Type *Cylindrical multitubular*

Single or Double-ended *single.*

No. of Furnaces in each *3*

Type of Furnaces *Slighton*

Date when Plan approved *9-4-29.*

Approved Working Pressure *200 lbs.*

Hydraulic Test Pressure *350 "*

Date of Hydraulic Test *7-6-29.*

„ when Safety Valves set *4-7-29.*

Pressure at which Valves were set *206 lbs.*

Date of Accumulation Test *4-7-29.*

Maximum Pressure under Accumulation Test *206 lbs.*

System of Draught *C.A.*

Can Boilers be worked separately? *Yes*

Makers of Plates *D. Colville Sons*

„ Stay Bars *R. B. Ho. & Co.*

„ Rivets *Slighton F. & Co. @*

„ Furnaces *Slighton F. & Co.*

Greatest Internal Diam. of Boilers *14'-0"*

„ „ Length „ *11'-6"*

Square Feet of Heating Surface each Boiler *2282 sq*

„ „ Grate „ „ *60 sq*

No. of Safety Valves each Boiler *2* Rule Diam. Actual *2 1/2"*

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

No. of Pressure Gauges, each Boiler *2* No. of Water Gauges *1*

„ Test Cocks „ *3* „ Salinometer Cocks *1*



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Thickness of End Plates in Steam Space Approved

in Boilers

Pitch of Steam Space Stays

Diar. of Stays Approved Threads per Inch

in Boilers

Material of

How are Stays Secured?

Diar. and Thickness of Loose Washers on End Plates

Riveted

Width of 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

Came as "Bura"



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Diar. of Stays Approved Threads per Inch

.. .. in Boilers

Material ..

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 C.O. Tops

Same as Para

Threads per Inch

Diar. of screw stays approved

.. ..

Material

Thickness of Combustion Chamber Stays Approved

.. .. in Boilers

Pitch of screw stays in C.O. Tops

Threads per Inch

Diar. of screw stays in C.O. Tops

.. ..

Material

Thickness of Combustion Chamber Stays Approved

.. .. in Boilers

Pitch of screw stays in C.O. Tops

Threads per Inch

Diar. of screw stays in C.O. Tops

.. ..

Material

Are all screw stays fitted with nuts at front end

Thickness of Combustion Chamber Stays

No. of stays over each wing chamber



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Diar. of Screwed Stays Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Sides Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Sides

Diar. " " Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Backs Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Backs

Diar. " " Approved Threads per Inch

" " " in Boilers

Material " "

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

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber

" " " Centre "

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tubes, each Boiler

Size of Lower Manholes

Same as Para

VERTICAL DONKEY BOILERS

No. of Boilers
 Type
 General Int. Diam.
 Height
 Height of Boiler Crown above Fire Grate
 Are Boiler Crown Lids or Lids?
 Internal Radius of Dished Ends
 Thickness of Plates
 Description of Joints in Boiler Crown
 Pitch of Rivet Heads
 Width of Overlap
 Height of Firebox Crown above Fire Grate
 Are Firebox Crown Lids or Lids?
 Internal Radius of Dished Crown
 Thickness of Plates
 No. of Crown Stays
 Internal Diam. of Firebox at Top
 Bottom
 Thickness of Plates
 No. of Water Tubes
 External of Water Tubes
 Internal of Water Tubes
 Size of Manholes in Shell
 Dimensions of Connecting Ring
 Height of Shell, with Lids
 (Clear Bottom)

SUPERHEATERS



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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	

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 Easing Gear?	
Date of Hydraulic Test	Test Pressure
Date when Safety Valves set	Pressure on Valves

MAIN STEAM PIPES

No. of Pipes	
Material	
Length, Weight or Diameter	
Internal Diar.	
Thickness	
How are Flanges secured?	
Date of Hydraulic Test	
Test Pressure	
No. of Pipes	
Material	
Length, Weight or Diameter	
Internal Diar.	
Thickness	
How are Flanges secured?	
Date of Hydraulic Test	
Test Pressure	
No. of Pipes	
Material	
Length, Weight or Diameter	
Internal Diar.	
Thickness	
How are Flanges secured?	
Date of Hydraulic Test	
Test Pressure	



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MAIN STEAM PIPES.

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

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

1
Copper
S.D.
4 1/2"
4 W.G.
braced
1-7-29
400 lbs.

LIST OF OPERATORS.

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

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

Same as "Steam"
"Steam"
"Steam"

FEED WATER HEATERS

FEED WATER FILTERS.



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

Installation Tested by	No. and Description of Dynamos	Makers of Dynamos	Capacity	Current Alternating or Continuous	Single or Double Wire System	Position of Dynamos	Main Switch Board	No. of Circuits to which Switches are attached on Main Switch Board	Particulars of these Circuits—
<i>R. P. ...</i>	<i>1 ...</i>	<i>Brushless ...</i>	<i>40 ...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>

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. S.W.G., Largest, No. 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

Stave as per ...

Are all Joints in Cables properly soldered and thoroughly Insulated so that the efficiency of the Cables is unimpaired?

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

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

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

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

Has the Insulation Resistance over the whole system been tested?

What does the Resistance amount to?

Ohms,

Is the Installation supplied with a Voltmeter?

" " " an Ampere Meter

Date of Trial of complete Installation *5-7-29.* Duration of Trial *6 hrs.*

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.

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.

as ascertained by *me* from personal examination

"
SUKHA"

J. D. Stephenson

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

Fees—

MAIN BOILERS.		£	s.	d.
H.S.	<i>2292</i> Sq. ft.	:	:	
G.S.	<i>60</i> "	:	:	
DONKEY BOILERS.				
H.S.	Sq. ft.	:	:	
G.S.	"	:	:	
		£	:	:
ENGINES.				
L.P.C.	<i>16.6</i> Cub. ft.	:	:	
		£	:	:
Testing, &c. ...		:	:	
		£	:	:
Expenses ...		:	:	
		£	:	:
Total ...		£	:	:

It is submitted that this Report be approved,

Gas Barr for Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the *23rd* December 1929

Fees advised

Fees paid



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Secretary.



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