

No. 2224

Handwritten initials

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 2242 No. in Register Book 3626

E. P. MURPHY.

S.S. "Ralph Gilchrist"

Makers of Engines Swan Hunter & W.R. Ltd

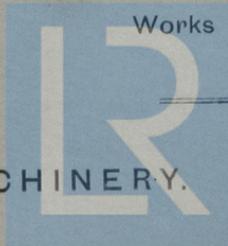
Works No. 1328

Makers of Main Boilers Swan Hunter & W.R. Ltd

Works No. 1328

Makers of Donkey Boiler None

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 *21st February 1930*

Surveyor's Report on the **Two Engines, Boilers, and Auxiliary Machinery of the** ~~Single Triple~~ ~~Two Quadruple~~ **Screw Steamer**
"Ralph Gilchrist".

Official No. *149493* Port of Registry *Newcastle*

Registered Owners *Sassia Steamships Ltd. Sassia,*
Ontario

Engines Built by *Swan Hunter & W.R. Ltd.*

at *Walker*

Main Boilers Built by *Swan Hunter & W.R. Ltd.*

at *Walker*

Donkey " " *none*

at

Date of Completion *28.3.29*

First Visit *13th Sept 1928*. Last Visit *28.3.29*. Total Visits. *56*.



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RECIPROCATING ENGINES.

Works No. 1328. No. of Sets One Description Triple-expansion
Surface Condensing.

No. of Cylinders each Engine Three No. of Cranks Three
Diars of Cylinders 15", 25" & 40" Stroke 33.
Cubic feet in each L.P. Cylinder 24.

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

Yes

" " each Receiver?

Yes

Type of H.P. Valves,

Piston Valve

1st I.P. "

Eric Valve.

2nd I.P.,

L.P. "

Doubleported slide.

" Valve Gear

Stephenson Link,

" Condenser

Circular 2 flow.

Cooling Surface 400 sq. ft.

Diameter of Piston Rods (plain part)

Screwed part (bottom of thread)

Material "

Diars. of Connecting Rods (smallest part)

Material

" Crosshead Gudgeons

Length of Bearing

Material

No. of Crosshead Bolts (each)

Diars. over Thrd.

Thrds. per inch

Material

" Crank Pin " "

" Main Bearings

Lengths

" Bolts in each

Diars. over Thread

Threads per inch

Material

" Holding Down Bolts, each Engine

61

Diars. 1 1/4"

No. of Metal Checks 61

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

John Spencer & Sons Newburn.

Piston " "

Crossheads, " "

Connecting Rods, Finished by

Swan Hunter & W.R. Ltd.

Piston " "

Crossheads, " "

Date of Harbour Trial

6.3.29

" Trial Trip

28.3.29

Trials run at

Off R. Tyne.

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

Yes.

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

842

Revs. per min. 92.8

Pressure in 1st I.P. Receiver,

71

lbs., 2nd I.P.,

✓ lbs., L.P., 12.1 lbs., Vacuum, 25" ins.

Speed on Trial

9.39

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 ✓

This Machinery is a duplicate of that numbered 1324 and fitted in No. 1369 (1/2 John O. McKellar) building at the same time and the details of which are similar unless otherwise stated.



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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

Diar. of 1st Reduction Pinion

Width

Pitch of Teeth

" 1st " Wheel

Estimated Pressure per lineal inch

Diar. 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.H.P.

Makers of Turbines

" Generators

" Motors

" Reduction Gear

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

DESCRIPTION OF INSTALLATION.

Sketch of Shafting

Sketch of Shafting

No. of Shafts at Bottom of Column

Forward Coupling

No. of Intermediate Shafting by Hole

Diar. of Pinion each Coupling

Diar. of Propeller Shafts by Hole

Are Propeller Shafts fitted with Continuous Rings?

Of what Material are the Afters Bearings composed?

Do the Bearings for the Afters consist of G.B.?

To prevent sea water entering the Stern Tubes?

Do the Stern Tubes have any special fittings?



SHAFTING.

Are the Crank Shafts Built or Solid?

Built.

No. of Lengths in each

Angle of Cranks

Diar. by Rule

Actual

In Way of Webs

" of Crank Pins

Length between Webs

Greatest Width of Crank Webs

Thickness

Least

Diar. of Keys in Crank Webs

Length

" Dowels in Crank Pins

Length

Screwed or Plain

No. of Bolts each Coupling

Diar. at Mid Length

Diar. of Pitch Circle

Greatest Distance from Edge of Main Bearing to Crank Web

Type of Thrust Blocks

Multi, Collar Horse Shoe.

No. " Rings

Diar. of Thrust Shafts at bottom of Collars

No. of Collars

" " Forward Coupling

At Aft Coupling

Diar. of Intermediate Shafting by Rule

Actual

No. of Lengths

No. of Bolts, each Coupling

Diar. at Mid Length

Diar. of Pitch Circle

No intermediate shafting.

Diar. of Propeller Shafts by Rule

Actual

At Couplings

Are Propeller Shafts fitted with Continuous Brass Liners?

Diar. over Liners

Length of After Bearings

Of what Material are the After Bearings composed?

Are Means provided for lubricating the After Bearings with Oil?

" " to prevent Sea Water entering the Stern Tubes?

If so, what Type is adopted?

SKETCH OF CRANK SHAFT.

See s/s 'Kingdoe'

Swan Hunter No 1236 built 1907.

Handwritten notes and sketches of crank shaft components, including labels like 'Crank shafts forged by', 'Pins', 'Webs', 'Propeller', 'Thrust', 'Internals', 'Crank', 'Thrust', 'Internals', 'Propeller'.

STAMP MARKS ON SHAFTS.

Handwritten stamp marks and dates: 20-1-10, 21-1-10, 22-1-10, 23-1-10, 24-1-10, 25-1-10, 26-1-10, 27-1-10, 28-1-10, 29-1-10, 30-1-10, 31-1-10.



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No. of Blades each Propeller fitted or Solid?
 Material of Blades Boss
 Diam. of Propellers Pitch Surface (each S. It.)
 Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth

Crank Shafts Forged by John Spencer & Sons Material Steel.
 ,, Pins ,, " " " "
 ,, Webs ,, Steel Coy of Scotland " "
 Thrust Shafts ,, John Spencer & Sons " "
 Intermed. ,, none " "
 Propeller ,, John Spencer & Sons " "
 Crank ,, Finished by Swan Hunter & Coy Ltd
 Thrust ,, " " " "
 Intermed. ,, " " " "
 Propeller ,, " " " "

STAMP MARKS ON SHAFTS.

Crank shaft. 391 GHB. 14.9.78.
 J. W. 4.12.78.

Thrust shaft. 391. GHB 21.9.78
 J. W. 4.12.78.

Propeller shaft. 391. 24.9.78 GHB
 J. W. 4.12.78.

SKETCH OF PROPELLER SHAFT.

See S/s Kingdoc
 Swan Hunter 1236. built 1927.



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BOILERS.

Works No. 1328.

No. of Boilers Two Type Cylindrical Multitubular.

Single or Double-ended Single-ended.

No. of Furnaces in each Two

Type of Furnaces Dighton

Date when Plan approved 31. 8. 28.

Approved Working Pressure 180 lbs.

Hydraulic Test Pressure 320 ..

Date of Hydraulic Test 22. 1. 29.

„ when Safety Valves set 6. 3. 29.

Pressure at which Valves were set 185 lbs.

Date of Accumulation Test no accumulation test taken.

Maximum Pressure under Accumulation Test ✓

System of Draught Forced - Howdens C.A.

Can Boilers be worked separately? Yes.

Makers of Plates Steel Coy of Scotland.

„ Stay Bars „ „

„ Rivets Rivet, Bolt & Nut Coy.

„ Furnaces Broomside Boiler works.

Greatest Internal Diam. of Boilers

„ „ Length „

Square Feet of Heating Surface each Boiler

„ „ Grate „ „

No. of Safety Valves each Boiler Rule Diam. Actual

Are the Safety Valves fitted with Lifting Gear?

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

„ Test Cocks „ „ Salinometer Cocks

Are the Water Gauges fitted direct to the boiler shells or mounted on Pliers?

Are the Water Gauge Pliers 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?

No. of Stanches of Shell Plates in each Boiler

„ „ „ Plates in each Stanchion

Thickness of Shell Plates Approved

„ „ „ in Boilers

Are the Rivets Iron or Steel?

Are the Longitudinal Seams Butt 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

Diam. of Rivet Holes

No. of Rows of Rivets in Centre Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diam. of Rivet Holes

No. of Rows of Rivets in Vents and Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diam. of Rivet Holes

No. of Rows of Rivets in Neck and Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diam. of Rivet Holes

Size of Manhole in Shell

Dimensions of Manhole



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

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?

No. of Strakes of Shell Plating in each Boiler

.. Plates in each Strake

Thickness of Shell Plates Approved

.. .. in Boilers

Are the Rivets Iron or Steel?

Are the Longitudinal Seams Butt 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 Treble Riveted?

No. of Rivets in a Pitch

Diar. of Rivet Holes Pitch

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

Are these Seams Hand or Machine riveted?

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Back End Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diar. of Rivet Holes Pitch

Size of Manholes in Shell

Dimensions of Compensating Rings



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Are the Water Gauges fitted direct to the Boiler Shell or mounted on Pipes?

Thickness of End Plates in Steam Space Approved

Are the Water Gauges fitted direct to the Boiler Shell or connected by Pipes?

" " " " " in Boilers

Are these Pipes connected by Galvanized Pipes?

Pitch of Steam Space Stays

Are Blow-off Taps or Valves fitted on Boiler Shell?

Diar. " " " " Approved Threads per Inch

No. of Strands of Anchor Plates in each Boiler

" " " " in Boilers "

Pitch in each Space

Material of " " "

Thickness of Shell Plates Approved

How are Stays Secured?

" " " " in Boilers

Diar. and Thickness of Loose Washers on End Plates

Are the Rivets Laid on Shell?

" " Riveted " "

Are the Longitudinal Stays fitted or Lag Bolts?

Width " " Doubling Strips "

Are the Shell Straps Straps or Rivets?

Are the Double End Straps of Steel or Iron?

Thickness of Middle Back End Plates Approved

Thickness of Middle Back Plates

" " " " " in Boilers

" " " " "

Thickness of Doublings in Wide Spaces between Fireboxes

Are the Doublings fitted on Outside or Inside?

Pitch of Stays at " " " "

Are they Riveted, Bolted, or Tapped?

Diar. of Stays Approved Threads per Inch

No. of Strands in a Space

" " in Boilers "

Diam. of Rivet Heads Pitch

Material "

No. of Straps of Rivets in Centre Circumferential Spaces

Are Stays fitted with Nuts outside?

Are the Rivets Laid on Shell or Outside?

" " " " "

Thickness of Back End Plates at Bottom Approved

No. of Straps of Rivets in Centre Circumferential Spaces

" " " " " in Boilers

" " " " "

Are these Rivets Riveted or Bolted?

Pitch of Stays at Wide Spaces between Fireboxes

Thickness of Doublings in " "

No. of Strands of Rivets in Back End Circumferential Spaces

" " " " "

Are these Rivets Riveted or Bolted?

Thickness of Front End Plates at Bottom Approved

Diar. of Rivet Heads

" " " " " in Boilers

No. of Strands in each

No. of Longitudinal Stays in Spaces between Furnaces

Are the Rivets Laid on Shell or Outside?

" " " " "

" " " " "

Diagonal Stays Approved

Thickness per Inch

" " " " in Boilers

" " " " "

Material "

" " " " "

" " " " "

Thickness of Front Tube Plates Approved

" " " " "

" " " " "

" " " " "

Pitch of Stay Tubes at Wide Spaces between Backs of Tubes

" " " " "

Thickness of Doublings in " " " "

" " " " "

Stay Tubes at " " " "

" " " " "

Are Stay Tubes fitted with Nuts at Front End?

" " " " "

" " " " "

" " " " "

" " " " "

Thickness of Back Tube Plates Approved

" " " " "

" " " " "

" " " " "

Pitch of Stay Tubes in Back Tube Plates

" " " " "

" " " " "

" " " " "

Thickness of Stay Tubes

" " " " "

" " " " "

External Diam. of Tubes

" " " " "

Material "

" " " " "

" " " " "

Thickness of Furnace Plates Approved

" " " " "

" " " " "

" " " " "

Smallest outside Diam. of Furnaces

" " " " "

" " " " "

Length between Top of Tubes

" " " " "

" " " " "

" " " " "

Width of Combustion Chamber from Front to Back

" " " " "

" " " " "

" " " " "

" " " " "

Pitch of stayed stays in G.C. Tops

" " " " "



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

Diar. of Screwed Stays Approved Threads per Inch

" " " " in Boilers

Material "

Thickness of Combustion Chamber Sides Approved

" " " " in Boilers

Thickness of Screwed Stays in C.O. Sides

Diar. " " Approved Threads per Inch

" " " " in Boilers

Material "

Thickness of Combustion Chamber Backs Approved

" " " " in Boilers

Pitch of Screwed Stays in C.O. Backs

Diar. " " Approved Threads per Inch

" " " " in Boilers

Material "

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

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber

" " " " " "

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

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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

Height of Boiler Crown above Fire Grate

Internal Diar.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

No. of Pipes

Material

Height of Boiler Crown above Fire Grate

Internal Diar.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure



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MAIN STEAM PIPES.

No. of Lengths	3
Material	Steel
Brazed, Welded or Seamless	Seamless.
Internal Diam.	3½"
Thickness	¼"
How are Flanges secured?	Screwed.
Date of Hydraulic Test	24.2.29.
Test Pressure	540 lbs
SUPERHEATERS	
No. of Lengths	
Material	
Brazed, Welded or Seamless	
Internal Diam.	
Thickness	
How are Flanges secured?	
Date of Hydraulic Test	
Test Pressure	

LIST OF EVAPORATORS.

Type	Same as John A. Mc Kellar (1919)
Date of Test	Aug 18. 1929
Working Pressure	180 lbs
Date of Test of Safety Valves under Steam	

FEED WATER HEATERS.

No. of Lengths	1
Material	Steel
Brazed, Welded or Seamless	Seamless.
Internal Diam.	18" dia
Thickness	Body 5/16"
How are Flanges secured?	
Date of Hydraulic Test	18.12.28
Test Pressure	180 lbs

FEED WATER FILTERS.

No. of Lengths	1
Material	Steel
Brazed, Welded or Seamless	Seamless.
Internal Diam.	18" dia
Thickness	Body 5/16"
How are Flanges secured?	
Date of Hydraulic Test	18.12.28
Test Pressure	180 lbs



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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.

as ascertained by *me* from personal examination

"Ralph Gilchrist"

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

Fees—

		£	s.	d.
MAIN BOILERS.				
H.S.	Sq. ft.	:	:	:
G.S.	"	:	:	:
DONKEY BOILERS.				
H.S.	Sq. ft.	:	:	:
G.S.	"	:	:	:
<hr/>				
ENGINES.				
L.P.O.	Cub. ft.	:	:	:
<hr/>				
		£	:	:
Testing, &c. ...		:	:	:
<hr/>				
		£	:	:
Expenses ...		:	:	:
<hr/>				
Total ...		£	:	:
<hr/>				

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 *23rd December 1929.*

Fees advised

Fees paid



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GENERAL CONSTRUCTION

Fees

Approved Plans	£	0	0
MAIN BOILER	£	10	0
DONKEY BOILER	£	10	0
ENGINEER	£	10	0
L.F.O.	£	10	0
Testing, etc.	£	10	0
Expenses	£	10	0
Total	£	60	0

It is submitted that this Report be approved.

Approved by the Committee for the Class of M.E.S. on the 23rd December 1904

Ralph Gilchrist

[Signature]

Secretary



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