

No. 2222

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 2236 No. in Register Book 3619

S.S. *John O. McKellar.*

Makers of Engines *Swan Hunter & W.R. Ltd*

Works No. *1324.*

Nephtine.

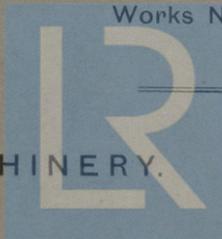
Makers of Main Boilers *Swan Hunter & W.R. Ltd*

Works No. *1324.*

Nephtine.

Makers of Donkey Boiler *NONE.*

Works No. _____



Lloyd's Register
Foundation

001754-001761-0026

No.

THE BRITISH CORPORATION FOR THE SURVEY

AND

REGISTRY OF SHIPPING.

Report No. No. in Register Book

Received at Head Office *24th February 1930*

Surveyor's Report on the ~~Two~~ ^{Single Triple} Engines, Boilers, and Auxiliary Machinery of the ~~Two~~ ^{Triple} Screw Steamship.

"John O. Mc Kellar"

Official No. *149495* Port of Registry *Newcastle*

Registered Owners *Sarnia Steamships Ltd.*

Engines Built by *Swan Hunter & Co. Ltd. Newcastle Wks Walker*

at *Walker-on-Tyne.*

Main Boilers Built by *Swan Hunter & Co. Ltd. Newcastle Wks.*

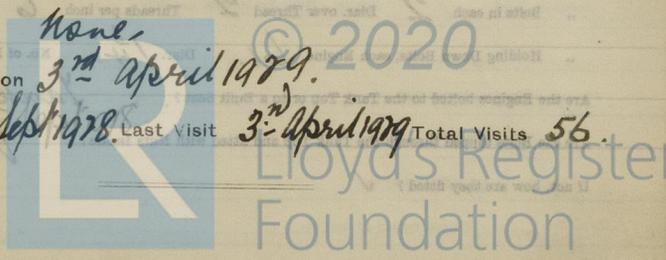
at *Walker-on-Tyne.*

Donkey *None*

at *None*

Date of Completion *3rd April 1929.*

First Visit *13th Sept 1928.* Last Visit *3rd April 1929* Total Visits *56*



SHAFTING.

Are the Crank Shafts Built or Solid?

Built

No. of Lengths in each

one

Angle of Cranks

120°

Diar. by Rule

8.26"

Actual

8³/₈"

In Way of Webs

8⁷/₈"

" of Crank Pins

8

Length between Webs

8¹/₄"

Greatest Width of Crank Webs

16¹/₄"

Thickness

5¹/₄"

Least " "

11³/₄"

"

5¹/₄"

Diar. of Keys in Crank Webs

1³/₄"

Length

3³/₄"

" Dowels in Crank Pins

Length

Screwed or Plain

plain.

No. of Bolts each Coupling

6

Diar. at Mid Length

2"

Diar. of Pitch Circle

12⁷/₈"

Greatest Distance from Edge of Main Bearing to Crank Web

3¹/₁₆"

Type of Thrust Blocks

multi. collar base shoe.

No. " Rings

4

Diar. of Thrust Shafts at bottom of Collars

8³/₈"

No. of Collars

4

" " Forward Coupling

8³/₈"

At Aft Coupling

8³/₈"

Diar. of Intermediate Shafting by Rule

7.858.

Actual

No. of Lengths

No. of Bolts, each Coupling

Diar. at Mid Length

Diar. of Pitch Circle

No intermediate shafting fitted.

Diar. of Propeller Shafts by Rule

8.878"

Actual

9¹/₅ 9¹/₈"

At Couplings

9¹/₈"

Are Propeller Shafts fitted with Continuous Brass Liners?

Yes.

Diar. over Liners

10³/₁₆" to 10⁹/₁₆"

Length of After Bearings

3'-0"

Of what Material are the After Bearings composed?

Resinum Vitae.

Are Means Provided for lubricating the After Bearings with Oil?

no

" " to prevent Sea Water entering the Stern Tubes?

no

If so, what Type is adopted?

SKETCH OF CRANK SHAFT.

*See 3/5 King doc**Swankunter No 1236 built 1927.*

STAMP MARKS ON SHAFTS.



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No. of Blades each Propeller *Four.* Fitted or Solid? *Fitted.*
 Material of Blades *Cast Iron.* Boss *Cast Iron.*
 Diam. of Propellers *12'-3"* Pitch *10'-9"* Surface (each *48* S. ft.)
 Coefficient of Displacement of Vessel at 1/2 Moulded Depth

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

STAMP MARKS ON SHAFTS.

Crank shaft. *BC 392*
G.H.B. 19.9.78
J.L. 4.12.28

Thrust shaft. *BC 389*
G.H.B. 14.9.78
J.L. 4.12.78.

Propeller shaft. *BC 389*
G.H.B. 15.12.28 ?
J.L. 4.12.78

SKETCH OF PROPELLER SHAFT.

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



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PUMPS, ETC.

No. of Air Pumps *One.* Diar. *14"* Stroke *17"*
 Worked by Main or Independent Engines? *Main.*

No. of Circulating Pumps *One.* Diar. *12"* Stroke *18"*
 Type of *" Dawson & Daronic Simplex.*
 Diar. of *" Suction from Sea*

Has each Pump a Bilge Suction with Non-return Valve? *Yes.* Diar. _____
 What other Pumps can circulate through Condenser? *Ballast pump.*

No. of Feed Pumps on Main Engine *2* Diar. *2 1/4"* Stroke *17"*
 Are Spring-loaded Relief Valves fitted to each Pump? *Yes.*
 Can one Pump be overhauled while the others are at work? *Yes.*

No. of Independent Feed Pumps _____ Diar. _____ Stroke _____
 What other Pumps can feed the Boilers? *General service & Injector.*

No. of Bilge Pumps on Main Engine *2* Diar. *2 1/2"* Stroke *17"*
 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? *Circulating & ballast pump.*

Are all Bilge Suctions fitted with Roses? *Yes or mudboxes.*
 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

1874
 No. of Boilers *Two*
 Single or Double-ended *Single-ended.*
 No. of Furnaces in each *Two*
 Type of Furnaces *Horizontal*
 Date when Plan approved *31-8-28*
 Approved Working Pressure *180 lbs.*
 Hydrostatic Test Pressure *220*
 Date of Hydrostatic Test *17-12-28*
 " when Safety Valve set *19-2-28*
 Pressure at which Valve set *182 lbs.*
 Date of Accumulation Test *No accumulation test taken*
 Maximum Pressure under Accumulation Test *Horizontal Pressure 180 lbs.*
 System of Bracing *Horizontal Pressure 180 lbs.*
 Can Boilers be worked separately? *Yes.*
 Nature of Plates *Horizontal Pressure 180 lbs.*
 Stay Bars *Horizontal Pressure 180 lbs.*
 Rivets *Horizontal Pressure 180 lbs.*
 Furnaces *Horizontal Pressure 180 lbs.*
 Divisional Diar. of Boilers *10'-1 1/2"*
 Length *10'-1 1/2"*
 Square Feet of Heating Surface *1008 sq. ft.*
 " Grates *32*
 " Tubes *32*
 No. of Boilers per each Deck *Two*
 Are the Safety Valves fitted with the Deck? *Yes*
 Test Cocks *Yes*



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BOILERS.

Works No. 1374.

No. of Boilers Two Type Cylindrical multitableas.

Single or Double-ended Single-ended.

No. of Furnaces in each Two

Type of Furnaces Heighlon

Date when Plan approved 31-8-28.

Approved Working Pressure 180 lbs.

Hydraulic Test Pressure 320 . .

Date of Hydraulic Test 17.12.28.

„ when Safety Valve set 19.2.29.

Pressure at which Valves were set 185 lbs.

Date of Accumulation Test No accumulation test taken.

Maximum Pressure under Accumulation Test ✓

System of Draught Howdens Forced C.A.

Can Boilers be worked separately? Yes.

Makers of Plates Wm Beardmore & Co. Glasgow

„ Stay Bars Steel Coy of Scotland.

„ Rivets Rivet Bolt & Nut Coy.

„ Furnaces Broomside Boiler works.

Greatest Internal Diam. of Boilers 10'-1³/₈.

„ „ Length „ 10'-9¹⁵/₁₆.

Square Feet of Heating Surface each Boiler 1068 sq ft

„ „ Grate „ „ 32 sq ft.

No. of Safety Valves each Boiler 2. Rule Diam. Actual 2" (high Lift)

Are the Safety Valves fitted with Easing Gear? Yes

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

„ Test Cocks Three „ Salinometer Cocks One.



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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?

by pipes.

Are these Pipes connected to Boilers by Cocks or Valves?

Cocks.

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

Back end plates.

No. of Strakes of Shell Plating in each Boiler

one.

Plates in each Strake

one.

Thickness of Shell Plates Approved

13/16"

in Boilers

13/16 full.

Are the Rivets Iron or Steel?

Steel

Are the Longitudinal Seams Butt or Lap Joints?

Butt joints

Are the Butt Straps Single or Double?

Double.

Are the Double Butt Straps of equal width?

Yes.

Thickness of outside Butt Straps

5/8"

inside

3/4"

Are Longitudinal Seams Hand or Machine Riveted?

Machine

Are they Single, Double, or Treble Riveted?

Double.

No. of Rivets in a Pitch

Five.

Diar. of Rivet Holes

7/8"

Pitch

6 1/8"

No. of Rows of Rivets in Centre Circumferential Seams

no centre seam.

Are these Seams Hand or Machine Riveted?

Hand

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"

Pitch

3.49"

No. of Rows of Rivets in Back End Circumferential Seams

Two

Are these Seams Hand or Machine Riveted?

Machine.

Diar. of Rivet Holes

1"

Pitch

3.49"

Size of Manholes in Shell

16" x 12"

Dimensions of Compensating Rings

3'-2 1/2" x 2'-8 1/2"



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Thickness of End Plates in Steam Space Approved

 $\frac{1}{32}$

On plates.

" " " " " in Boilers

 $\frac{1}{32}$ full.

by pipes.

Pitch of Steam Space Stays

18" x 14"

Diar. " " " " Approved

 $2\frac{3}{4}$ "

Threads per Inch

6

" " " " " in Boilers

 $2\frac{3}{4}$ "

"

6

Material of " " "

Steel.

How are Stays Secured?

Nuts inside + outside + washers

Diar. and Thickness of Loose Washers on End Plates

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

" " Riveted " "

Width " " Doubling Strips "

Thickness of Middle Back End Plates Approved

 $\frac{1}{32}$

" " " " " in Boilers

 $\frac{1}{32}$ full.

Thickness of Doublings in Wide Spaces between Fireboxes

 ~~$13\frac{1}{4}$ " x 9"~~ none.

Pitch of Stays at

 $13\frac{1}{4}$ " x 9"

Diar. of Stays Approved

 $1\frac{7}{8}$ " & $1\frac{3}{4}$ "

Threads per Inch

9.

" " in Boilers

-do-

-do-

Material "

Steel.

Are Stays fitted with Nuts outside?

Yes.

Thickness of Back End Plates at Bottom Approved

 $\frac{1}{32}$

" " " " " in Boilers

 $\frac{1}{32}$ full.

Pitch of Stays at Wide Spaces between Fireboxes

 $13\frac{1}{4}$ " x 9"

Thickness of Doublings in

None.

Thickness of Front End Plates at Bottom Approved

 $\frac{1}{32}$

" " " " " in Boilers

 $\frac{1}{32}$

No. of Longitudinal Stays in Spaces between Furnaces

One.



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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
 Location
 Internal Diar.
 Thickness
 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.

3 1/2".

Thickness

1/4".

How are Flanges secured?

Screwed.

Date of Hydraulic Test

14. 1. 29.

Test Pressure

540.

G.M.B.

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

SUPERHEATERS

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

LIST OF DONKEY PUMPS
EVAPORATORS

- 1. Circulating pump, simple 4 1/2" x 12" x 18"
- 1. Ballast donkey, vertical duplex 9" x 11" x 10"
- 1. General Service Vertical duplex 5" x 12" x 6"
- 1. Sanitary pump, horizontal duplex 4" x 12" x 14"
- 1. Fresh water, horizontal duplex
- 1. Grubbing injector

FEED WATER HEATERS

- exhaust steam - surface
- Working Pressure 180 lbs
- Test Pressure 1420 lbs
- Date of Test 16. 12. 28

FEED WATER FILTERS

- Pressure 180 lbs
- Test Pressure 1420 lbs
- Date of Test 14. 12. 28



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EVAPORATORS.

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

FEED WATER HEATERS.

No.	One.	Type	Exhaust steam - Surface -
Makers			Hocking
Working Pressure	180 lbs	Test Pressure	Coils 450 Body 50
		Date of Test	16. 12. 78.

FEED WATER FILTERS.

No.	One.	Type	Pressure.	Size
Makers			Hy Watson & Sons	N/A 2 1/2 in.
Working Pressure	180 lbs.	Test Pressure	450 lbs	Date of Test
				4. 17. 78.

LIST OF DONKEY PUMPS.

1. Circulating pump. Simplex 9 1/2" x 12" x 18"
1. Ballast donkey. Vertical duplex 9 x 11 x 10"
1. General Service. Vertical duplex. 5 x 3 1/2 x 6"
1. Sanitary pump. Horizontal duplex. 4 1/2 x 2 3/4 x 4"
1. Fresh water. Horizontal duplex. " " "
1. Gresham's injector



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ELECTRIC LIGHTING.

Installation Fitted by *Swan Hunter & W.B. Ltd.*
 No. and Description of Dynamos *1. 10. K.W. Compound wound.*
 Makers of Dynamos *Sunderland Forge & Eng. Co. Sland.*
 Capacity *91* Amperes, at *110* Volts. *380* Revols. per Min.
 Current Alternating or Continuous *Continuous.*
 Single or Double Wire System *Double wire.*
 Position of Dynamos *On Steering gear platform in Eng Room*
 „ Main Switch Board *On lower platform Sth. side.*
 No. of Circuits to which Switches are provided on Main Switch Board *Four.*

Particulars of these Circuits:—

Circuit.	Number of Lights.	Candle Power.	Watts		Size of Conductor.	Current Density.	Conductivity of Conductor.	Insulation Resistance per Mile.
			Required.	Actual.				
Navigation	4		60 W				100%	megohms 1250
	2	5.0	30 W	7/029	2500			
Fd., Accom.	16		30 W					900
	14	12.0	16c.p.	7/044	1200			
Aft., Accom.	16		30 W					900
	26	18.0	16cp	7/044	1800			
Engine & Boil R.	13		30 W					1250.
	8	7.0	16cp	7/029	3500			

Total No. of Lights *91* No. of Motors driving Fans, &c. No. of Heaters

Current required for Motors and Heaters

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

Engine room Distribution Box
4 circuits 1. Boiler room 2. Port & Store try room
3. Starboard engine room, & bottom platform 3/0 or 9 wire
Navigation Box 5 circuits 3/0 or 9
Ford accommodation 3 circuits 3/0 or 9
Aft " 5 circuits 3/0 or 9
" " 1 " 3/0 or 6 (clusters)

Are Out-outs fitted as follows?—

On Main Switch Board, to Cables of Main Circuits *Yes*

On Aux. " " each Auxiliary Circuit *Yes*

Wherever a Cable is reduced in size *Yes*

To each Lamp Circuit *Yes*

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

Are the Fuses of Standard Sizes? *Yes*

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

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? *Lead covered & rammed*

" " Saloons, State Rooms, &c., " ? *Lead covered.*

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp *In tubing*

(2) " passing through Bunkers or Cargo Spaces *Lead covered in Wood casing.*

(3) " " Deck Beams or Bulkheads *w. J. Bands, lead or rubber bushes*

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

is unimpaired? *none made*

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

Are all Hull Connections for Single-Wire Systems made with Screws of large Surface? *none*

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? *400 000* Ohms.

Is the Installation supplied with a Voltmeter? *Yes*

" " " an Ampere Meter *Yes*

Date of Trial of complete Installation *19.7.19.* 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. *✓*

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

John O. McKellar

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

Fees—

MAIN BOILERS.		£	s.	d.
H.S.	Sq. ft.	:	:	
G.S.	"	:	:	
DONKEY BOILERS.				
H.S.	Sq. ft.	:	:	
G.S.	"	:	:	
		£	:	:
ENGINES.				
L.P.C.	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 *23rd December 1929.*

Fees advised

Fees paid



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Secretary.

GENERAL CONSTRUCTION

Foot--

the amount of the ...

H.S. 2d. L. ...

DORREY BOWERS ...

H.S. 2d. B. ...

L.R.D. ...

Testing, etc. ...

Expenses ...

Total ...

If it is submitted that this Report be approved.

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

John O. McCallister

John ...

Foot ...

Foot ...

Foot ...



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