

No. 2223

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. 2243 No. in Register Book 3627

N/N "PARL MANION"

S.S. C. H. Houston.

Makers of Engines Swan Hunter & W. R. Ltd

Works No. 1326.

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

Works No. 1326.

Makers of Donkey Boiler None

Works No. ✓

MACHINERY.

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003625-003630-0001



No.

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. .... No. in Register Book .....

Received at Head Office

24<sup>th</sup> February 1930

Surveyor's Report on the Deto Engines, Boilers, and Auxiliary  
Machinery of the <sup>Single Triple</sup> ~~Twin Quadruple~~ Screw Steamship.

C. H. Houston.

Official No. 149494 Port of Registry Newcastle.

Registered Owners Sarnia Steamships Ltd.

Sarnia, Ontario

Engines Built by Swan Hunter & W.R. Ld. Neptune Wks.

at Walker-on-Lyne.

Main Boilers Built by Swan Hunter & W.R. Ld.

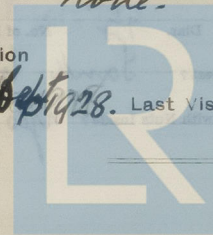
at Walker-on-Lyne.

Donkey " " None -

at None.

Date of Completion

First Visit 13<sup>th</sup> Oct 1928. Last Visit 4<sup>th</sup> April 1929. Total Visits 56.



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## RECIPROCATING ENGINES.

Works No. 1376. No. of Sets One Description Triple expansion  
surface condensing.

No. of Cylinders each Engine three No. of Cranks three  
Diars of Cylinders 15", 25", 4 40" Stroke 33.  
Cubic feet in each L.P. Cylinder 24.

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

" " " each Receiver?

Type of H.P. Valves, Piston Valve

1st I.P., " Tric Valve.

2nd I.P., "

L.P. "

" Valve Gear

" Condenser

Double ported slide valve.  
Stephenson Link.

Circular two flow. Cooling Surface 400 sq. ft.

Diameter of Piston Rods (plain part) 3 3/8" Screwed part (bottom of thread) 2.66

Material " Forged Steel.

Diar. of Connecting Rods (smallest part) 4 1/4" Material Forged Steel

" Crosshead Gudgeons 4 1/2" Length of Bearing 6 1/2" Material

No. of Crosshead Bolts (each) 2 Diar. over Thrd. 2 1/4" Thds. per inch 6 Material Steel

" Crank Pin " " 2 " 2 1/4" " "

" Main Bearings 6 Lengths 8"

" Bolts in each 2 Diar. over Thread 2" Threads per inch 6 Material Steel

" Holding Down Bolts, each Engine 61 Diar. 1 1/4" No. of Metal Chocks 61

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

Piston " "

Crossheads " "

Connecting Rods, Finished by

Piston " "

Crossheads, " "

Date of Harbour Trial 24.2.29

" Trial Trip 4.4.29.

Trials run at off R. Lyne.

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

If so, what was the L.H.P.? 861

Revs. per min. 94.

Pressure in 1st I.P. Receiver, 70 lbs., 2nd I.P.,

lbs., L.P., 12 lbs., Vacuum, 25 1/2 ins.

Speed on Trial 8.4

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

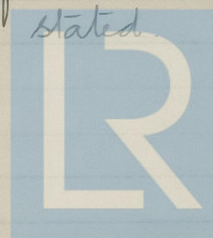
data:— ✓

Builders' estimated I.H.P. ✓

Revs. per min. ✓

Estimated Speed ✓

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



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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 Stern

Are the Propeller Shafts driven direct by the Turbines or through Gearing?

Is Single or Double Reduction Gear employed?

Diam. of 1st Reduction Pinion

" 1st " Wheel

Width

Pitch of Teeth

Estimated Pressure per lineal inch

Diam. of 2nd Reduction Pinion

" 2nd " Wheel

Width

Pitch of Teeth

Estimated Pressure per lineal inch

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

" " 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 Knots. Propeller Revs. per min. S.H.P.

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

## DESCRIPTION OF INSTALLATION.

1. Auxly stop valve. 3 1/2" 22-10-28 H.
2. Main stop valve. 3 1/2" 30-10-28 H.

H.P. Cylinder tested 20.11.28.  
 B.C. 240 lbs. G.H.B. No 2400.



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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

" 1st " Wheel

} Width

Pitch of Teeth

Estimated Pressure per lineal inch

Diam. of 2nd Reduction Pinion

" 2nd " Wheel

} Width

Pitch of Teeth

Estimated Pressure per lineal inch

Revs. 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 Revs. 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.

Type of Thrust Block

No. of Rings

Diam. of Thrust Shafts at bottom of Collars

No. of Collars

Diam. of Intermediate Shafts by Hole

No. of Holes, each Coupling

Diam. of Propeller Shafts by Hole

No. of Propeller Shafts with Couplings from Line

Diam. over Line

Of what Material are the After Bearings composed?

Are the Bearings for the After Bearings composed of?

Are the Bearings for the After Bearings composed of?

Are the Bearings for the After Bearings composed of?

Are the Bearings for the After Bearings composed of?



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## 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

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

In Way of Webs

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

" of Crank Pins

8"

Length between Webs

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

Greatest Width of Crank Webs

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

Thickness

5 $\frac{1}{4}$ "

Least

" "

11 $\frac{3}{4}$ "

"

5 $\frac{1}{4}$ "

Diar. of Keys in Crank Webs

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

Length

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

" Dowels in Crank Pins

✓

Length

✓

Screwed or Plain

plain

No. of Bolts each Coupling

6

Diar. at Mid Length

2

Diar. of Pitch Circle

12 $\frac{7}{8}$ "

Greatest Distance from Edge of Main Bearing to Crank Web

3 $\frac{1}{16}$ "

Type of Thrust Blocks

Multi-collar Horse-shoe.

No.

" Rings

4.

Diar. of Thrust Shafts at bottom of Collars

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

No. of Collars

4.

" " Forward Coupling

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

At Aft Coupling

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

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.

Diar. of Propeller Shafts by Rule

8.878

Actual

9.11" 9 $\frac{1}{8}$ "

At Couplings

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

Are Propeller Shafts fitted with Continuous Brass Liners?

Yes

Diar. over Liners

10 $\frac{3}{16}$ " to 10 $\frac{5}{16}$ "

Length of After Bearings

3'-0"

Of what Material are the After Bearings composed?

Lignum 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?

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## SKETCH OF CRANK SHAFT.

Same as S/S "Kingdoc" built 1927.

Swan Hunter No. 1236 built 1927.



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No. of Blades each Propeller *Four* Fitted or Solid? *Litted*  
 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 Moulded Depth

Crank Shafts Forged by	<i>John Spencer &amp; Sons</i>	Material	<i>Steel</i>
" Pins "	"	"	"
" Webs "	<i>Steel Coy of Scotland</i>	"	"
Thrust Shafts	<i>John Spencer &amp; Sons</i>	"	"
Intermed. "	<i>None.</i>	"	"
Propeller "	<i>John Spencer &amp; Sons</i>	"	"
Crank " Finished by	<i>Swan Hunter &amp; W.R. Ltd.</i>		
Thrust " "	"	"	"
Intermed. "	"	"	"
Propeller "	"	"	"

# STAMP MARKS ON SHAFTS.

Crank shaft.

390. 14.9.28 G.H.B.  
 J.L. 4.12.28.

Thrust shaft.

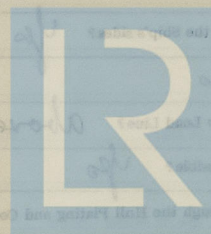
390 G.H.B. 11.9.28  
 J.L. 4.12.28.

Propeller shaft.

390 G.H.B. 18.9.28  
 J.L. 4.12.28.

## SKETCH OF PROPELLER SHAFT.

See s/s Kingolce  
 Swan Hunter No. 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 & Downie 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

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## BOILERS.

Works No. 1326.

No. of Boilers Two Type Cylindrical Multitubular

Single or Double-ended Single-ended.

No. of Furnaces in each Two

Type of Furnaces Deighton

Date when Plan approved 31.8.28.

Approved Working Pressure 180 lbs.

Hydraulic Test Pressure 320 " "

Date of Hydraulic Test 8.1.29

" when Safety Valves set 24.2.29

Pressure at which Valves were set 185 lbs.

Date of Accumulation Test no accumulation test taken

Maximum Pressure under Accumulation Test ✓

System of Draught Forced. Howdens 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 Bldg 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 Easing Gear?

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

" Test Cocks " " Salinometer Cocks



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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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Thickness of End Plates in Steam Space Approved

" " " " " in Boilers

Pitch of Steam Space Stays

Diar. " " " " Approved Threads per Inch

" " " " " in Boilers "

Material of " " "

How are Stays Secured?

Diar. and Thickness of Loose Washers on End Plates

" " Riveted " "

Width " " 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



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Diag. 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 Diag. of Tubes

Material "

Thickness of Furnace Plates Approved

" " " in Boilers

Smallest outside Diag. 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.C. Tops



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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



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MAIN STEAM PIPES.

No. of Lengths	3
Material	Steel
Brazed, Welded or Seamless	Seamless
Internal Dia.	3½"
Thickness	¼"
How are Flanges secured?	Screwed
Date of Hydraulic Test	5. 2. 29.
Test Pressure	540 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

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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 <sup>lbs</sup> Body 50
		Date of Test	

@  
No 3594.

## FEED WATER FILTERS.

No.	One.	Type	Pressure	Size
Makers	Hy Watson & Sons			
Working Pressure	180 lbs	Test Pressure	450 lbs	Date of Test 18-12-28.

@

## LIST OF DONKEY PUMPS.

1	Circulating pump	Sizes same
1	Ballast pump	as 5/8 King doc
1	General service pump	No 1236 built 1927.
1	Sanitary pump	
1	Fresh water pump	also John O McKellar
1	Greshams injector.	5/8 1369
		ing 1324 built 1929
		at same time.



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SPARE GEAR.

No. of Top End Bolts.	No. of Bot. End Bolts.	No. of Cylinder Cover Studs
" Coupling Bolts	" Main Bearing Bolts	" Valve Chest "
" Junk Ring Bolts	" Feed Pump Valves	" Bilge Pump Valves
" H.P. Piston Rings	" I.P. Piston Rings	" L.P. Piston Rings
" " Springs	" " Springs	" " Springs
" Safety Valve "	" Fire Bars	" Feed Check Valves
" Piston Rods	" Connecting Rods	" Valve Spindles
" Air Pump Rods	" Air Pump Buckets	" Air Pump Valves
" Clr. "	" Clr. "	" Clr. "
" Crank Shafts	" Crank Pin Bushes	" Crosshead Bushes
" Propeller Shafts	" Propellers	" Propeller Blades
" Boiler Tubes	" Condenser Tubes	" Condenser Ferrules

OTHER ARTICLES OF SPARE GEAR:—



## REFRIGERATORS.

No. of Machines

Capacity of each

### Makers

### Description

No. of Steam Cylinders, each Machine

No. of Compressors

No. of Cranks

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

### System of Refrigeration

## Insulation

Are Brine and other Regulating Valves placed so as to be accessible without entering the Insulated Spaces?

Are all Pipes, Air Trunks, &c., well secured and protected from risk of damage?

Are all Bilge, Sounding, and Air Pipes in Insulated Spaces properly insulated?

Are Thermometer Tubes so arranged that Water cannot enter and freeze in them?

Date of Test under Working Conditions

## RESULTS OF TRIALS

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

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## ELECTRIC LIGHTING.

Installation Fitted by

Swan Hunter &amp; W.R. Ltd.

No. and Description of Dynamos

1 - 10 KW compound wound

Makers of Dynamos

Sunderland Forge &amp; Eng'g Co.

Capacity

91

Ampere, at

110

Volts,

380

Revs. 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

Stb side lower platform.

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

Four

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.
----------	-------------------	---------------	-------------------------	--------------------	------------------	----------------------------	---------------------------------

Total No. of Lights

No. of Motors driving Fans, &amp;c.

No. of Heaters

Current required for Motors and Heaters



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

Installation fitted by  
No. and Position of Dynamometers  
Main or Branch Cables  
Capacity  
Current Alternating or Continuous  
Single or Double Wire System  
Position of Dynamometers  
Main Switch Board  
No. of Cables to which switches are provided on Main Switch Board

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. 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

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 Screws 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? Yes.

What does the Resistance amount to? 500 000.

Ohms.

Is the Installation supplied with a Voltmeter? Yes.

„ „ „ an Ampere Meter Yes.

Date of Trial of complete Installation 24.2.29. Duration of Trial 6 hours.

Have all the requirements of Section 42 been satisfactorily carried out? Yes.



## 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. *✓*

Inspected by the Chief

Surveyor. *✓*

Have 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*

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. *"C. A. Houston"*

as ascertained by *me* from personal examination

*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.O.	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 *23<sup>rd</sup> December 1929*

Fees advised

Fees paid



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Secretary.





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