

No. 2244

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Handwritten red scribble

Report No. *2254* No. in Register Book *3638*

" " " "

S.S. *F. V. MASSEY*

Makers of Engines *Smiths Dock Co Ltd*

Works No. *339*

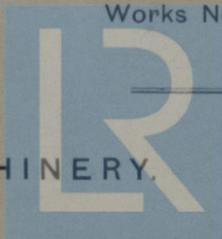
Makers of Main Boilers *Blair No (1926) Ltd*

Works No. *6192*

Makers of Donkey Boiler *✓*

Works No. *© 2021*

MACHINERY.



Lloyd's Register
Foundation

14

002577-002582-0230

No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. No. in Register Book

Received at Head Office

8th November 1929

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the ^{Single Triple} ~~Twin Quadruple~~ Screw Steamers.

"G. V. Massey"

Official No. 160420 Port of Registry

Middlesbrough

Registered Owners

The Yate Transit Co. Ltd.

Engines Built by

Synthe Works Ltd.

at

South Bank-on-Sea

Main Boilers Built by

Blair & Co (1926) Ltd.

at

Stockton-on-Sea

Donkey

at

Date of Completion

4-29

First Visit

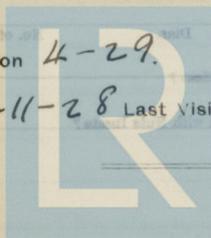
19-11-28

Last Visit

16-4-29

Total Visits

40



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RECIPROCATING ENGINES.

Works No. **339.** No. of Sets **1** Description **Triple expansion
S.C. 3crks**No. of Cylinders each Engine **3.** No. of Cranks **3.**Diams 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.?

" " " each Receiver?

Type of H.P. Valves,

1st I.P. ,,

2nd I.P.,,

L.P. ,,

" Valve Gear

" Condenser

Cooling Surface sq. ft.

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 " " " " "

" 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 **Smiths Mfg. Co.**

Piston " "

Crossheads, " "

Date of Harbour Trial **12-4-29**" Trial Trip **16-4-29.**Trials run at **In Lees Bay.**Were the Engines tested to full power under Sea-going conditions? **yes.**

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

Revs. per min. **139**Pressure in 1st I.P. Receiver, **60** 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

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

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 Turbine

No. of Bolts each Coupling

Diar. of Turbine Shafts at bottom of Coupling

Forward Coupling

At Aft Coupling

No. of Couplings

Diar. of Pinion each Coupling

Diar. of Pinion Shafts by Bolts

At Couplings

Are Propeller Shafts driven with Continuous Gear Lines?

Diar. over Lines

Of what Material are the Aft Bearings composed?

Are Bearings covered for protecting the Aft Bearings with Oil?

Are Bearings covered for protecting the Aft Bearings with Oil?



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No. of Blades each Propeller Pitted or Solid?
 Material of Blades Boss
 Diam. of Propellers Pitch Surface (each S. It.)
 Coefficient of Displacement of Vessel at 1/2 Moulded Depth

Same as head shafts Hall
Yip Yorgeloy Material *Sp.*

Crank Shafts Forged by
 " Pins " " "
 " Webs " " "
 Thrust Shafts " " "
 Intermed. " " "
 Propeller " " "
 Crank " Finished by " "
 Thrust " " " "
 Intermed. " " " "
 Propeller " " " "

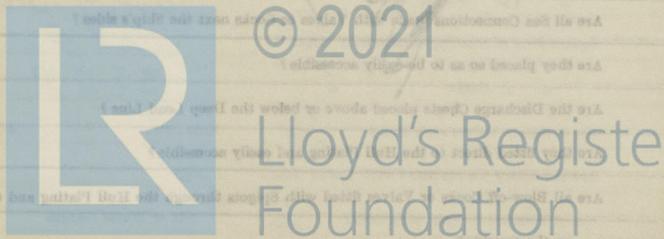
STAMP MARKS ON SHAFTS.

*Crank, Thrust
 & Tail Shafts: -*

B.C.
N^o 233
29-1-29
R.S.

SKETCH OF PROPELLER SHAFT.

No. of Air Pumps
 What other Pumps or independent engines?
 No. of Cranking Pumps
 Type of
 Diam. of
 Has each Pump a high section with Non-return Valve?
 What other Pumps are driven through Couplings?
 No. of Tail Pumps or 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 Tail Pumps
 What other Pumps are used for Ballast?
 No. of High Pumps on Main Engines
 Can one Pump be overhauled while the others are at work?
 No. of Independent High Pumps
 What other Pumps are driven from the Engines?
 Are all High Sections fitted with Valves?
 Are the Valves, etc., so arranged as to prevent unintentional connection between Sea and Bilge?
 Are all the Connections between the Main and High Pumps?
 Are they placed so as to be easily accessible?
 Are the Discharge Pipes placed above or below the Propeller?
 Are they fitted with valves and easily accessible?
 Are the Blowdown Pipes fitted with the Half Turning and Covering Plates or Flanges on the Outlets?



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?

See no need of the hull

B.O.
1133
29-1-29
R.S.

BOILERS

Handwritten notes and tables on the right page, including boiler specifications and dates.



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BOILERS.

Works No. *C. 192.*

No. of Boilers *2* Type *Cylindrical multitubular*

Single or Double-ended *Single.*

No. of Furnaces in each *2*

Type of Furnaces *Blighton*

Date when Plan approved

Approved Working Pressure *180 lbs.*

Hydraulic Test Pressure *320 "*

Date of Hydraulic Test *13-3-29*

" when Safety Valves set *12-4-29*

Pressure at which Valves were set *185 lbs.*

Date of Accumulation Test *12-4-29*

Maximum Pressure under Accumulation Test *185 lbs.*

System of Draught *C.A.*

Can Boilers be worked separately? *yes*

Makers of Plates *James Dunlop Co. Ltd.*

" Stay Bars *D. Colville & Sons Ltd.*

" Rivets *Blair Co.*

" Furnaces *Broonside St. Lb. @*

Greatest Internal Diam. of Boilers *10'-4 ³/₈"*

" " Length " *10'-9 ¹⁵/₁₆"*

Square Feet of Heating Surface each Boiler *1128 #*

" " Grate " " *33.8 #*

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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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

Handwritten notes:
"Meador's Wall"
"Little Soots"
"Blair's"
"33-34"
"2 1/2"



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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

Same as middle back



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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.C. Tops

"Same as made up wall"

Threads per Inch Diar. of Screwed Stays Approved

" " 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 screw stays fitted with nuts at both ends?

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



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Diam. of Screwed Stays Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Sides Approved

" " " " in Boilers

Pitch of Screwed Stays in C.O. Sides

Diam. " " Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Backs Approved

" " " " in Boilers

Pitch of Screwed Stays in C.O. Backs

Diam. " " 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

" " " Centre

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tubes, each Boiler

Size of Lower Manholes

Stays as head bolts will

VERTICAL-DONKEY BOILERS

No. of Boilers
Type
Greatest Diam.
Height
Height of Boiler Crown above Fire Grate
Are Boiler Crowns Flat or Dished?
Internal Radius of Dished Boilers
Description of Stays in Boiler Crown
Diam. of Rivet Hole
Width of Girders
Height of Firebox Crown above Fire Grate
Are Firebox Crowns Flat or Dished?
External Radius of Dished Crowns
Thickness of Plates
Diam.
Material
No. of Crown Stays
External Diam. of Firebox at Top
Bottom
Thickness of Plates
No. of Water Tubes
Internal of Water Tubes
Size of Manholes in Shell
Dimensions of Compensating Ring
Location of 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
Date of Installation
Location of Valves and



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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

Internal Diameter

External Diameter

Internal Radius

External Radius

Thickness of Plates

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

No. of Crown Stays

External Diar. of Firebox at Top

No. of Water Tubes

Material of Water Tubes

Size of Manhole in Shell

Dimensions of Compensating Ring

Heating Surface, each Boiler

No. of Pipes

Material

Internal Diameter

External Diameter

Internal Radius

External Radius

Thickness of Plates

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

No. of Crown Stays

External Diar. of Firebox at Top

No. of Water Tubes

Material of Water Tubes

Size of Manhole in Shell

Dimensions of Compensating Ring

Heating Surface, each Boiler



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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

4.
 capble.
 S. D.
 3 1/2"
 Y. W. J.
 braked.
 9-4-29
 400 lbs.

LIST OF CONDENSERS

EVAPORATORS

No. of Lengths
 Material
 Brazed, Welded or Seamless
 Internal Diam.
 Thickness
 How are Flanges secured?
 Date of Hydraulic Test
 Test Pressure

FEED WATER HEATERS

No. of Lengths
 Material
 Brazed, Welded or Seamless
 Internal Diam.
 Thickness
 How are Flanges secured?
 Date of Hydraulic Test
 Test Pressure

FEED WATER FILTERS

No. of Lengths
 Material
 Brazed, Welded or Seamless
 Internal Diam.
 Thickness
 How are Flanges secured?
 Date of Hydraulic Test
 Test Pressure

SUPERHEATERS



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EVAPORATORS.

No. *1* Type *Cylinder* Tons per Day
 Makers
 Working Pressure Test Pressure Date of Test
 Date of Test of Safety Valves under Steam

FEED WATER HEATERS.

No. *1* Type *Walden + Brook* @
 Makers
 Working Pressure *180 lbs.* Test Pressure *400 lbs.* Date of Test

FEED WATER FILTERS.

No. *1* Type *Macepell + Pallock* @
 Makers
 Working Pressure *180 lbs.* Test Pressure *400 lbs.* Date of Test

LIST OF DONKEY PUMPS.

Same as Mearcliffe Hall

No. of Top End Bolts	No. of Top End Bolts	No. of Top End Bolts
Coasting Bolts	Main Heating Bolts	Coasting Bolts
Jack Ring Bolts	Jack Ring Bolts	Jack Ring Bolts
H.P. Piston Rings	H.P. Piston Rings	H.P. Piston Rings
Spring	Spring	Spring
Water Valve	Water Valve	Water Valve
Piston Rods	Piston Rods	Piston Rods
Air Pump Bolts	Air Pump Bolts	Air Pump Bolts
Crank Shafts	Crank Shafts	Crank Shafts
Propeller Shafts	Propeller Shafts	Propeller Shafts
Hoist Taper	Hoist Taper	Hoist Taper



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Temperature of air in room
 Temp. of dynamo
 Temp. of oil in dynamo
 Temp. of lamp

Remarks

Time of day

ELECTRIC LIGHTING.

Installation Fitted by

R. Pickering Sons Ltd.

No. and Description of Dynamos

1. Compound wound

Makers of Dynamos

Sunderland Forge & Co. Ltd.

Capacity

1/2 kW Lamps, at 110 Volts, 350 Revs. per Min.

Current Alternating or Continuous

Continuous.

Single or Double Wire System

Double.

Position of Dynamos

Starting Platform.

" Main Switch Board

"

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

4

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.
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"I made as made clips hall"



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Total No. of Lights

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

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 Cut-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?

What does the Resistance amount to?

Ohms.

Is the Installation supplied with a Voltmeter?

" " " an Ampere Meter

Date of Trial of complete Installation 16-4-29. 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

" F. V. MASSEY "

J. D. Stephenson

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

Fees—

MAIN BOILERS.		£	s.	d.
H.S.	<i>2256</i> Sq. ft.	:	:	
G.S.	<i>674.6</i> "	:	:	
DONKEY BOILERS.				
H.S.	Sq. ft.	:	:	
G.S.	"	:	:	
		£	:	:
ENGINES.				
L.P.C.	<i>24</i> 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 *13th November 1929.*

Fees advised

Fees paid



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Foundation
Secretary.



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