

No. 2243

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 2244 No. in Register Book 3631

S.S. TEAK BAY

Makers of Engines

Sancho Dock & Co. Ltd.

Works No. 338

Makers of Main Boilers

Blair & Co. (1926) Ltd.

Works No. C 184

Makers of Donkey Boiler

Works No.

MACHINERY.

Lloyd's Register
Foundation

004833-004841-0263

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 Screw "Beakbay"
Twin Quadruple

Official No.

Port of Registry

Montreal

Registered Owners

The Beakbay Steamship Co. Montreal

Engines Built by

at

Smiths Dock Co. Ltd.
South Bank-on-Tees

Main Boilers Built by

at

Blair & Co (1926) Ltd.
Stockton-on-Tees

Donkey " "

at

Date of Completion

4-29

First Visit

19-11-28

Last Visit

3-4-29

Total Visits

40

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RECIPROCATING ENGINES.

Works No. **338** No. of Sets **1** Description **Triple expansion
S.C. 3 crks.**

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

Diameter of Piston Rods (plain part)

Screw part (bottom of thread)

Material "

Diam. of Connecting Rods (smallest part)

" Crosshead Gudgeons

Length of Bearing

No. of Crosshead Bolts (each)

Diam. over Thrd.

Thrds. per inch

Material

" Crank Pin " "

" Main Bearings

Length

" Bolts in each

Diam. over Thread

Threads per inch

Material

" Holding Down Bolts, each Engine

Diam.

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

Piston " "

Crossheads, " "

Connecting Rods, Finished by

Piston " "

Crossheads, " "

Date of Harbour Trial

" Trial Trip

Trials run at

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

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

Pressure in 1st I.P. Receiver, 59 lbs., 2nd I.P.,

lbs., L.P., 11.5 lbs., Vacuum, 25" ius.

Speed on Trial

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-ELECTRO 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.



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No. of Blades each Propeller

Welded or Solid?

Material of Blades

Diam. of Propellers

Pitch

Surface (each)

S. ft.)

Coefficient of Displacement of Vessel at 1/2 Moulded Depth

Crank Shafts Forged by

Material

Pins

Webs

Thrust Shafts

Intermed. "

Propeller "

Crank " Finished by

Thrust "

Intermed. "

Propeller "

STAMP MARKS ON SHAFTS.

Crank & Thrust
+ Tail Shafts:-

B.C.
Nº230
25-1-29
R.S.

SKETCH OF PROPELLER SHAFT.

No. of Air Pumps

Worked by Main or Independent Engines?

No. of Circulating Pumps

Type of

Diam. of

Section from Sea

Has each Pump a High Section with Non-return Valve?

What other Pumps are connected through Condenser?

No. of Feed 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 Feed Pumps

What other Pumps are used for boilers?

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 drawn from the High?

Are all High Sections fitted with Relief?

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

Are all Sea Connections so arranged as to prevent the Ship's water?

Are they placed so as to prevent connection?

Are the Highways placed above or below the Deep Load Line?

Are the Highways so placed as to prevent connection?

Are all Pumps of Cast Iron or Steel fitted with valves drawn from the Main Engines or Pumps?

Are the Pumps of Cast Iron or Steel fitted with valves drawn from the Main Engines or Pumps?

Are the Pumps of Cast Iron or Steel fitted with valves drawn from the Main Engines or Pumps?

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BOILERS.

Works No.

No. of Boilers

Type

Single 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

Maximum Pressure under Accumulation Test

System of Draught

Can Boilers be worked separately?

Makers of Plates

" Stay Bars

" Rivets

" Furnaces

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

6 18th.
Cylindrical multitubular
single.
Brighton

180 lbs.

320 "

5-3-29

3-4-29

185 lbs.

3-4-29

185 lbs.

C.A.

yes.

James Dunlop & Co. Ltd.

J. Colville & Sons Ltd.

Blair & Co.

Brookside, P. Ltd. @

10'-4 3/8"

10'-9 5/16"

1128 #

33.8 #

2

2 1/2 "

yes.

2

1

3

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



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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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Diam. 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 Diam. of Tubes

Material "

Thickness of Furnace Plates Approved

" " " in Boilers

Smallest outside Diam. 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 read off page"

Diam. of Screwed Stays Approved Threads per Inch

" " " in Boilers

Material "

Thickness of Combustion Chamber Plates 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 Trip 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 Water Chamber

" " " Centre

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tubes, each Boiler

Size of Lower Manholes

VERTICAL DONKEY BOILERS

No. of Boilers Type
 Greatest Dia. Dia. Height
 Height of Boiler Crown above Fire Grate
 Are Boiler Crowns Flat or Dished?
 Internal Radius of Dished Boilers
 Thickness of Plates
 Description of Stays in Boiler Crowns
 Pitch of Stays
 Width of Overlap
 Height of Firebox Crown above Fire Grate
 Are Firebox Crowns Flat or Dished?
 External Radius of Dished Crowns
 Thickness of Plates
 Material
 Dia. of Crown Stays
 External Diam. of Firebox at Top
 Thickness of Plates
 Bottom
 No. of Water Tubes
 Material of Water Tubes
 Size of Manhole in Shell
 Dimensions of Connecting Flange
 Heating Surface, each Boiler
 Gross Surface

SUPERHEATERS

Description of Superheaters
 Where situated?
 Which Boilers are connected to Superheaters?
 Can superheaters be used if water boilers are working?
 No. of Safety Valves on each Superheater
 Date of Safety Valve Test
 Date of Superheater Test
 Date of Water Gauge Test
 Date of Water Gauge Test



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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			
Diarr. 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	Diarr.	Material	
External Diarr. of Firebox at Top	Bottom	Thickness of Plates	
No. of Water Tubes	Ext. Diarr.	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 Diarr.

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

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
Copper.
S.P.
3 1/2
2 1/2
brashed.
27-3-29
400 lbs.

EVAPORATORS.

No.

Type

No.

Type

Date of Test

Test Pressure

Working Pressure

Date of Test of Safety Valves under Steam

FEED WATER HEATERS.

No.

Type

Date of Test

Test Pressure

Working Pressure

FEED WATER FILTERS.

No.

Type

Date of Test

Test Pressure

Working Pressure



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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
" Cir. "	" Cir. "	" Cir. "
" 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.

COMPARTMENT.	Temp. at beginning of Trial.	Temp. at end of Trial.	Time required to obtain this Result.	Rise of Temp. after hours.
No. of Machines				
Capacity				
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				

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



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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 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?

What does the Resistance amount to?

Ohms.

Is the Installation supplied with a Voltmeter?

" " " an Ampere Meter

Date of Trial of complete Installation 3-4-29. 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.

Fees—

MAIN BOILERS.

		£	s.	d.
H.S.	2256 Sq. ft.	:	:	:
G.S.	67.6 "	:	:	:

DONKEY BOILERS.

H.S.	Sq. ft.	:	:	:
G.S.	"	:	:	:
	£	:	:	:

ENGINES.

L.P.O.	24 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 13th November, 1929

Fees advised

Fees paid



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Secretary.

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.

"TEAK BAY"

as ascertained by me from personal examination

J.D. Stephenson

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

Tees—

GENERAL INFORMATION

The following information is given for the purpose of providing a general outline of the work of the Committee.

The Committee has been constituted by the Council of the Institution of Mechanical Engineers.

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