

No. 1819

288  
Kincaid Bros. 187

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. 2144 No. in Register Book 3502

S.S. "SIR WILLIAM H. KILBURN."

Makers of Engines FERGUSON BROS.

Works No. 882

Makers of Main Boilers JOHN G. KINCAID & CO. LTD.

Works No. 124

Makers of Donkey Boiler NONE

Works No. —

MACHINERY.



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015355-015365-0112



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Received at Head Office *2nd May 1928.*

Surveyor's Report on the New Engines, Boilers, and Auxiliary  
Machinery of the ~~Single Triple~~ <sup>Single Triple</sup> Screw DREDGER

"SIR WILLIAM H. RAEBURN"

Official No.

Port of Registry GLASGOW.

Registered Owners CLYDE NAVIGATION TRUSTEES.

Engines Built by FERGUSON BROS.

at PORT GLASGOW.

Main Boilers Built by JOHN G. KINCAID & CO LTD

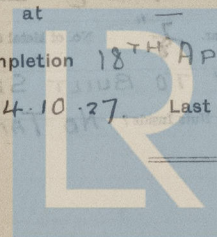
at GREENOCK

Donkey " " NONE

at

Date of Completion 18<sup>TH</sup> APRIL 1928

First Visit 14.10.27. Last Visit 18.4.28. Total Visits 42.



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## RECIPROCATING ENGINES

Works No. 288 No. of Sets 2 Description COMPOUND EXPANSION

## VERTICAL, DIRECT ACTING, STEAM RECIPROCATING ENGINES

No. of Cylinders each Engine	2	No. of Cranks	2
Diars. of Cylinders	11"	Stroke	16"

Cubic feet in each L.P. Cylinder 3.53

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

" " " each Receiver ? YES

Type of H.P. Valves, ANDREWS & CAMERON SLIDE VALVE

1st I.P. "

" 2nd I.P. "

" L.P. "

Valve Gear STEPHENSON LINK MOTION

Condenser SURFACE BUILT TYPE Cooling Surface 600 sq. ft.

Diameter of Piston Rods (plain part)  $2\frac{1}{2}$  Screwed part (bottom of thread) 1.986

Material " HIGH TENSILE STEEL

Diar. of Connecting Rods (smallest part)  $2 \frac{3}{8}$ " Material M S

„ Crosshead Gudgeons  $2\frac{1}{4}$ " Length of Bearing  $2-3$ " Material H. T. STEEL

No. of Crosshead Bolts (each) 4 Diar. over Thrd.  $1\frac{1}{8}$ " Thrds. per inch 7 Material

" Crank Pin " " 2 "  $1\frac{1}{2}$ " " 6 " "

„ Main Bearings 3 Lengths 2 @  $7\frac{1}{2}$ " 1 -  $9\frac{1}{2}$ "

„ Bolts in each 2 Diar. over Thread 1 1/2 " Threads per inch 6 Material

„ Holding Down Bolts, each Engine 18      Diam.  $\frac{3}{8}$ "      No. of Metal Chocks 18

Are the Engines bolted to the Tank Top or to a Built Seat? TO BUILT SEAT

Are the Bolts tapped through the Tank Top and fitted with Nuts Inside? **NO TANK**

If not, how are they fitted?

Connecting Rods, Forged by STEEL CO OF SCOTLAND

Piston " " " " HTS

Crossheads, " " " " "

Connecting Rods, Finished by FERGUSON BROS

Piston	"	"
--------	---	---

Crossheads, " "

Date of Harbour Trial 12 - 4 - 28

" Trial Trip 18 - 4 - 28

Trials run at FIRTH OF CLYDE

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

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

Revol. per min. 158

Pressure in 1st I.P. Receiver, — lbs., 2nd I.P., — lbs., L.P., 19.5 lbs., Vacuum, 27 ins.

Speed on Trial 8.5 knots

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

data:—

Builders' estimated I.H.P. 360 TOTAL

Revol. per min. 160

Estimated Speed 8 knots

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### Description of Generators

Is Single or Double Reduction Gear employed ? \_\_\_\_\_

### Description of Motors

Estimated Pressure per lineal inch \_\_\_\_\_

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 \_\_\_\_\_

37 Trial Trip

Trials run at \_\_\_\_\_

Speed on Trial	Knots.	Propeller Revols. per min.	S.H.P.
10.0	10.0	100	100
10.5	10.5	105	105
11.0	11.0	110	110
11.5	11.5	115	115
12.0	12.0	120	120
12.5	12.5	125	125
13.0	13.0	130	130
13.5	13.5	135	135
14.0	14.0	140	140
14.5	14.5	145	145
15.0	15.0	150	150
15.5	15.5	155	155
16.0	16.0	160	160
16.5	16.5	165	165
17.0	17.0	170	170
17.5	17.5	175	175
18.0	18.0	180	180
18.5	18.5	185	185
19.0	19.0	190	190
19.5	19.5	195	195
20.0	20.0	200	200
20.5	20.5	205	205
21.0	21.0	210	210
21.5	21.5	215	215
22.0	22.0	220	220
22.5	22.5	225	225
23.0	23.0	230	230
23.5	23.5	235	235
24.0	24.0	240	240
24.5	24.5	245	245
25.0	25.0	250	250
25.5	25.5	255	255
26.0	26.0	260	260
26.5	26.5	265	265
27.0	27.0	270	270
27.5	27.5	275	275
28.0	28.0	280	280
28.5	28.5	285	285
29.0	29.0	290	290
29.5	29.5	295	295
30.0	30.0	300	300
30.5	30.5	305	305
31.0	31.0	310	310
31.5	31.5	315	315
32.0	32.0	320	320
32.5	32.5	325	325
33.0	33.0	330	330
33.5	33.5	335	335
34.0	34.0	340	340
34.5	34.5	345	345
35.0	35.0	350	350
35.5	35.5	355	355
36.0	36.0	360	360
36.5	36.5	365	365
37.0	37.0	370	370
37.5	37.5	375	375
38.0	38.0	380	380
38.5	38.5	385	385
39.0	39.0	390	390
39.5	39.5	395	395
40.0	40.0	400	400
40.5	40.5	405	405
41.0	41.0	410	410
41.5	41.5	415	415
42.0	42.0	420	420
42.5	42.5	425	425
43.0	43.0	430	430
43.5	43.5	435	435
44.0	44.0	440	440
44.5	44.5	445	445
45.0	45.0	450	450
45.5	45.5	455	455
46.0	46.0	460	460
46.5	46.5	465	465
47.0	47.0	470	470
47.5	47.5	475	475
48.0	48.0	480	480
48.5	48.5	485	485
49.0	49.0	490	490
49.5	49.5	495	495
50.0	50.0	500	500
50.5	50.5	505	505
51.0	51.0	510	510
51.5	51.5	515	515
52.0	52.0	520	520
52.5	52.5	525	525
53.0	53.0	530	530
53.5	53.5	535	535
54.0	54.0	540	540
54.5	54.5	545	

## Generators

Meters

Reduction Gear

### Turbine Spindles forged by

Wheels forged or cast by

Reduction Gear Shafts forged by

Wheels forged or cast by

DESCRIPTION OF INSTALLATION.

ONE

11 3 4  
11 3 4

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## SHAFTING.

Are the Crank Shafts Built or Solid?

BUILT

No. of Lengths in each

ONE

Angle of Cranks

90°

Diar. by Rule

4.55"

Actual

4.75"

In Way of Webs

4 7/8"

" of Crank Pins

5"

Length between Webs

6"

Greatest Width of Crank Webs

9 1/4"

Thickness

3 1/2"

Least

"

9 1/4"

"

3 1/2"

Diar. of Keys in Crank Webs

1"

Length

2 1/2"

" Dowels in Crank Pins

3/4"

Length

2"

Screwed or Plain

SCREWED

No. of Bolts each Coupling

4

Diar. at Mid Length

1 3/8"

Diar. of Pitch Circle

7 3/4"

Greatest Distance from Edge of Main Bearing to Crank Web

1/4"

Type of Thrust Blocks

MICHELL

No. " Rings

ONE

Diar. of Thrust Shafts at bottom of Collars

4 3/4"

No. of Collars

ONE

" " Forward Coupling

4 3/4"

At Aft Coupling

4 3/4"

Diar. of Intermediate Shafting by Rule

4.335"

Actual

—

No. of Lengths

—

No. of Bolts, each Coupling

—

Diar. at Mid Length

—

Diar. of Pitch Circle

—

Diar. of Propeller Shafts by Rule

5.015"

Actual

5 1/8"

At Couplings

5

Are Propeller Shafts fitted with Continuous Brass Liners?

NO.

Diar. over Liners

—

Length of After Bearings

2'-6"

Of what Material are the After Bearings composed?

WHITE METAL

Are Means provided for lubricating the After Bearings with Oil?

YES

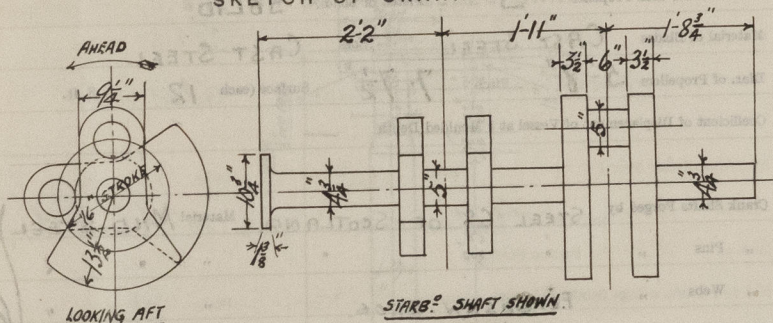
" " to prevent Sea Water entering the Stern Tubes?

YES

If so, what Type is adopted?

CLYDE TRUST.

## SKETCH OF CRANK SHAFT.



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## PUMPS, ETC.

No. of Air Pumps 1 Diar. 14" Stroke 9"  
 Worked by Main or Independent Engines? INDEPENDENT. G. & J. WEIR

No. of Circulating Pumps 1 Diar. 14" Stroke 9"  
 Type of " INDEP. D.A. COMBINED AIR & CIR. PUMPS.

Diar. of " Suction from Sea 5"  
 Has each Pump a Bilge Suction with Non-return Valve? YES Diar. 3 1/2"

What other Pumps can circulate through Condenser? SERVICE PUMP.

No. of Feed Pumps on Main Engine NONE 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 2 Diar. 4" Stroke 7"

What other Pumps can feed the Boilers? NONE

No. of Bilge Pumps on Main Engine NONE 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? SERVICE PUMP & EJECTOR

Are all Bilge Suctions fitted with Roses? YES

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 BOTH.

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

No. of Boilers ONE  
 Type of Boilers MULTITUBULAR MARINE

Single or Double-ended SINGLE END FIRING

No. of Furnaces in each 2

Type of Furnaces DEIGHTON

Date when first approved

Approved Working Pressure 150 lbs

Hydraulic Test Pressure 30 - 15 - 27

Date of Hydraulic Test 23/10/21

" when safety valves set 15 - 14 - 28

Pressure at which valves were set 150 lbs

Date of accommodation Test 18 - 11 - 28

Maximum Pressure under Accommodation Test 150 lbs

System of Drafting NATURAL

Can Boilers be worked separately? —

Name of Patent DAVID GALVILE & SONS L.P.

Manufacturer LARK CHIEF STEEL CO LTD

Address KIRKSTALL FORGE CO. LEEDS

Where N.W. RIVET & NUT FACTORY

Inspector MARSHALL & CO LTD

Greatest Internal Diam. of Boilers 11'-0"

Length 10'-0"

Spacing Feet of Heating Surface 20 ft

" " 30 ft

No. of Safety Valves 5

Are they fitted with safety valves? YES

Are they fitted with safety valves? YES

Are they fitted with safety valves? YES



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## BOILERS.

Works No. 184

No. of Boilers ONE Type CYLINDRICAL MULTITUBULAR MARINE

Single or Double-ended SINGLE END FIRED.

No. of Furnaces in each 2

Type of Furnaces DEIGHTON.

Date when Plan approved

Approved Working Pressure 120 lbs DESIGNED FOR 130 lbs/sq"

Hydraulic Test Pressure 30.12.27.

Date of Hydraulic Test 230 lbs/sq"

" when Safety Valves set 12.4.28.

Pressure at which Valves were set 120 lbs.

Date of Accumulation Test 18.4.28.

Maximum Pressure under Accumulation Test 125 lbs/sq"

System of Draught NATURAL

Can Boilers be worked separately? —

Makers of Plates DAVID COLVILLE & SONS LTD.

" Stay Bars LANARKSHIRE STEEL CO LTD.

" Rivets KIRKSTALL FORGE CO. LEEDS.

" Furnaces N. W. RIVET BOLT & NUT FACTORY.

" MARSHALL & CO LTD.

Greatest Internal Diam. of Boilers 11'-0"

" Length 10'-0"

Square Feet of Heating Surface each Boiler 1042

" Grate 36.4

No. of Safety Valves each Boiler 2 Rule Diam. 1 7/8" Actual 2" H.L.

Are the Safety Valves fitted with Easing Gear? YES.

No. of Pressure Gauges, each Boiler 2 No. of Water Gauges 2

" Test Cocks NONE " Salinometer Cocks NONE

BC TEST.  
No 5045  
230 lbs  
WP 120 lbs.  
RLG.  
30.12.27.

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

Are the Water Gauges fitted direct to the Boiler Shell 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 Stations of Blow-off Cocks in each Boiler

Blow-off Cocks in each Boiler

Thickness of Shell Plates Approved

in Boilers

Are the Rivets Iron or Steel?

Are the Longitudinal Seams Butt or Lap Joints?

Are the Butt Joints Single or Double?

Are the Double Butt Joints of equal width?

Thickness of outside Butt Joints

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 Front and Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diam. of Rivet Holes

No. of Rows of Rivets in Back and Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diam. of Rivet Holes

No. of Rows of Rivets in Shell

Thickness of Plates



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

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? **VALVES,**

No. of Strakes of Shell Plating in each Boiler **ONE**

Plates in each Strake **TWO.**

Thickness of Shell Plates Approved  $\frac{1}{16}$ "

in Boilers  $\frac{1}{16}$ "

Are the Rivets Iron or Steel? **STEEL.**

Are the Longitudinal Seams Butt or Lap Joints? **BUTT.**

Are the Butt Straps Single or Double? **DOUBLE**

Are the Double Butt Straps of equal width? **YES.**

Thickness of outside Butt Straps  $\frac{1}{16}$ "

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

Are Longitudinal Seams Hand or Machine Riveted? **MACHINE**

Are they Single, Double, or Treble Riveted? **TREBLE.**

No. of Rivets in a Pitch **4**

Diam. of Rivet Holes  $\frac{13}{16}$ " Pitch  $5\frac{3}{8}$ "

No. of Rows of Rivets in Centre Circumferential Seams —

Are these Seams Hand or Machine Riveted? —

Diam. of Rivet Holes — Pitch —

No. of Rows of Rivets in Front End Circumferential Seams **TWO.**

Are these Seams Hand or Machine riveted? **HAND MACHINE.**

Diam. of Rivet Holes  $\frac{15}{16}$ " Pitch **3.1579"**

No. of Rows of Rivets in Back End Circumferential Seams **TWO.**

Are these Seams Hand or Machine Riveted? **MACHINE**

Diam. of Rivet Holes  $\frac{15}{16}$ " Pitch **3.1579**

Size of Manholes in Shell **16" x 12"**

Dimensions of Compensating Rings **2'-6 $\frac{1}{2}$ " x 2'-2 $\frac{1}{2}$ " x 13/16. 36 RIVETS  $\frac{3}{8}$ "**



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Thickness of End Plates in Steam Space Approved  $\frac{7}{8}$ "

" " " " " in Boilers "

Pitch of Steam Space Stays  $17\frac{3}{4} \times 14\frac{1}{2}$ "

Diar. " " " " Approved  $2\frac{1}{4}$  Threads per Inch 6

" " " " " in Boilers " "

Material of " " " STEEL.

How are Stays Secured? DOUBLE NUTS.

Diar. and Thickness of Loose Washers on End Plates —

" " Riveted " " " —

Width " " Doubling Strips " —

Thickness of Middle Back End Plates Approved  $\frac{11}{16}$ "

" " " " " in Boilers "

Thickness of Doublings in Wide Spaces between Fireboxes —

Pitch of Stays at " " " "  $13 \times 8\frac{3}{4}$ "

Diar. of Stays Approved  $1\frac{1}{2}$  Threads per Inch 9

" " in Boilers " " "

Material " STEEL

Are Stays fitted with Nuts outside? YES

Thickness of Back End Plates at Bottom Approved  $\frac{11}{16}$ "

" " " " " in Boilers "

Pitch of Stays at Wide Spaces between Fireboxes —

Thickness of Doublings in " " —

Thickness of Front End Plates at Bottom Approved  $\frac{13}{16}$ "

" " " " " in Boilers "

No. of Longitudinal Stays in Spaces between Furnaces —

Thickness of End Plates Approved

" " " " in Boilers

Material

Thickness of Front End Plates Approved

" " " " in Boilers

Pitch of Stay Tubes at Space between Heads of Tubes

Thickness of Doublings in

Stay Tubes at

Are Stay Tubes fitted with Nuts at Front End?

Thickness of Back End Plates Approved

" " " " in Boilers

Pitch of Stay Tubes in Back End Plates

" " " "

Thickness of Stay Tubes

" " " "

General Diam. of Tubes

Material

Thickness of Front End Plates Approved

" " " " in Boilers

Smallest outside diam. of Fireboxes

Length between Tube Plates

Which of Connections (Fireboxes) (Front to Back)

Thickness of

" " " " in Boilers

Pitch of Stay Tubes at Space between Heads of Tubes



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Diar. of Stays Approved — Threads per Inch —  
 " " in Boilers —  
 Material " —  
 Thickness of Front Tube Plates Approved  $\frac{13}{16}$ "  
 " " " in Boilers "  
 Pitch of Stay Tubes at Spaces between Stacks of Tubes  $14\frac{1}{4}" \times 9.125"$   
 Thickness of Doublings in " " " —  
 " Stay Tubes at " " "  $\frac{3}{8}" \times \frac{5}{16}"$   
 Are Stay Tubes fitted with Nuts at Front End? YES  
 Thickness of Back Tube Plates Approved  $\frac{4\frac{1}{2}}{16}"$   
 " " " in Boilers "  
 Pitch of Stay Tubes in Back Tube Plates  $\frac{4\frac{9}{16}}{16}" \times 9\frac{1}{8}" \times 10\frac{12}{32}"$   
 " Plain "  $\frac{4\frac{9}{16}}{16}"$   
 Thickness of Stay Tubes  $\frac{3}{8}" \times \frac{5}{16}"$   
 " Plain " 8WG.  
 External Diar. of Tubes  $3\frac{1}{2}"$   
 Material " WROT IRON.  
 Thickness of Furnace Plates Approved  $\frac{3}{8}"$   
 " " " in Boilers  $\frac{3}{8}"$   
 Smallest outside Diar. of Furnaces  $3' - 2\frac{1}{2}'$   
 Length between Tube Plates  $6' - 9"$   
 Width of Combustion Chambers (Front to Back)  $2' - 7"$   
 Thickness of " " Tops Approved  $\frac{19}{32}"$   
 " " " in Boilers "  
 Pitch of Screwed Stays in C.O. Tops  $9\frac{3}{4}" \times 9\frac{1}{4}"$



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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 1  
 Material COPPER.  
 Brazed, Welded or Seamless SEAMLESS.  
 Internal Diam. 4½"  
 Thickness 9 L.W.G.  
 How are Flanges secured? BRAZED  
 Date of Hydraulic Test  
 Test Pressure 250 lbs.

No. of Lengths 2  
 Material COPPER  
 Brazed, Welded or Seamless SEAMLESS  
 Internal Diam. 3"  
 Thickness 11 L.W.G.  
 How are Flanges secured? BRAZED.  
 Date of Hydraulic Test  
 Test Pressure 250 lbs.

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 NONE.  
 Working Pressure Test Pressure Date of Test  
 Date of Test of Safety Valves under Steam

## FEED WATER HEATERS.

No. 1. Type WEIR MULTIFLOW SURFACE FEED WATER HEATER. No 86446.  
 Makers G. & J. WEIR LTD. CATHCART  
 Working Pressure 120/lbs. Test Pressure SHELL 50 lb. Date of Test 1/2/28 J.H.W.  
 TUBES 288

## FEED WATER FILTERS.

No. 1. Type PRESSURE FILTER No 3320. Size 2"  
 Makers RAILTON CAMPBELL & CRAWFORD LTD.  
 Working Pressure 120/lbs. Test Pressure 300/lbs. Date of Test 13-2-28 S.L.B.

## LIST OF DONKEY PUMPS.

AIR & CIR. PUMPS COMBINED G. & J. WEIR LTD. AIR 14" CIR 14" CYL. 10" STROKE 9"

GEN. SER. PUMP. G. & J. WEIR LTD. No 36765 4" x 3 1/2" x 9"

SUCTIONS. SEA, FW. TANKS, BILGE DIRECT, BILGES.

DISCHARGES. DECK, SANITARY, OVERBOARD, CONDENSER.

INDEP. FEED PUMPS (2) G. & J. WEIR CYL. 6" PUMP 4" STROKE 7"

SUCTIONS. SEA, FRESH WATER BOILER FLOAT TANK.

DISCHARGE BOILER DIRECT OR THRO' FILTER.

REVERSING ENGINE MCTAGGART SCOTT & CO.

STEERING ENGINE MCGREGOR LTD.



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No. of Top End Bolts.	No. of Bot. End Bolts.	No. of Cylinder Cover Studs
Coupling Bolts 6	Main Bearing Bolts 2	Valve Chest —
Junk Ring Bolts 1 SET	Feed Pump Valves 1 SET.	Bilge Pump Valves 1 SET
H.P. Piston Rings —	I.P. Piston Rings —	L.P. Piston Rings —
" " Springs —	" " Springs —	" " Springs —
Safety Valve " 1 SET	Fire Bars 1 SET.	Feed Check Valves 2
Piston Rods 1	Connecting Rods —	Valve Spindles 1
Air Pump Rods 1	Air Pump Buckets —	Air Pump Valves 1 SET
Cir. " 1	Cir. " —	Cir. " —
Crank Shafts —	Crank Pin Bushes 1 pair	Crosshead Bushes 1 pair
Propeller Shafts —	Propellers 2	Propeller Blades —
Boiler Tubes —	Condenser Tubes 24	Condenser Ferrules 48

OTHER ARTICLES OF SPARE GEAR:—

SMALL ASSORTED BOLTS & NUTS

## ASSORTMENT OF IRON BARS



## REFRIGERATORS.

No. of Machines

Capacity of each

Makers

Description

NONE.

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.
Navigation	37.0	37.3	3/10	6.5
Deck	37.0	37.3	3/10	7.5
Forward	37.0	37.3	3/10	7.5
Engine Room	37.0	37.3	3/10	7.5

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



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## ELECTRIC LIGHTING.

## ELECTRIC LIGHTING.

Installation Fitted by

J. CHARTERS.

No. and Description of Dynamos

ONE

No. 143806.

Makers of Dynamos

COMPTON

ENGINE BELLISS &amp; MORCOM 1596

Capacity

364 Amperes, at 110 Volts.

500 Revols. per Min.

Current Alternating or Continuous

CONTINUOUS CURRENT.

Single or Double Wire System

DOUBLE WIRE.

Position of Dynamos

ENGINE ROOM PORT SIDE

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.
1 NAVIGATION	3.	20 W.	4.37	3/18	820/□	6.5	3100 Ω
2 DECK	7.	60 W.	9.1	7/18	730/□	7.5	2600.
3 FORWARD.	12.	40 "	4.37	3/18	820/□	4.5	3100.
4 ENGINE & BOILER.	34.	40 "	12.4.	7/18.	992/□	7.5	2600.

Total No. of Lights

19.

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

*Navigation DB on  
Bridge with 6 switches. Wick. Lantern DB in ER.  
with 3 switches (1 spare).  
Ground DB. in crew space with 3 switches.  
ER & BR. DB. in engine Room with 8 switches.*

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. *Numbered* S.W.G., Largest, No. *Numbered* S.W.G.

How are Conductors in Engine and Boiler Spaces protected? *Plumbed Canvas insulated*

" Saloons, State Rooms, &c., " *Lead covered in gbl. conduit.*

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp

*L.C. in tubes.*

(2) " passing through Bunkers or Cargo Spaces

(3) " " Deck Beams or Bulkheads

*Lead lined & W.T. glassed*

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

is unimpaired? *Yes*

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? **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? *80000* Ohms,

Is the Installation supplied with a Voltmeter? *Yes*

" " " an Ampere Meter? *Yes*

Date of Trial of complete Installation *18.4.28* Duration of Trial *6 hours*

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

*Robert L. Craig*



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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 B.S. "SIR WILLIAM H. RAEBURN"

as ascertained by <sup>us</sup>me from personal examination

Robert L. Craig  
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,

*J. L. Adam*  
Chief Surveyor.  
Assistant Chief Surveyor

Approved by the Committee for the Class of M.B.S.\* on the 16<sup>TH</sup> MAY, 1928

Fees advised

Fees paid



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Secretary.









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