

No. 2042

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 1950 No. in Register Book 3277

T.S.S.

"PHRONTIS"

Makers of Engines BURMEISTER & WAIN

Works No. 1182-3

Makers of Main Boilers

Works No.

Makers of Donkey Boiler COCHRAN & CO (ANNAN) LTD

Works No. 9759

MACHINERY.



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No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. *1950* No. in Register Book *3277*

Received at Head Office *3rd May 1926*

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the ~~Single~~ *Triple* ~~Twin~~ *Quadruple* Screw OIL MOTOR SHIP.
"PHRONTIS"

Official No.

Port of Registry *AMSTERDAM.*

Registered Owners

*Alfred Holt & Co. Ltd. Liverpool Managers
for. Ocean Nederlandsche Stoomvaart Maatschappij.*

Engines Built by *BURMEISTER & WAIN*

at *COPENHAGEN*

Main Boilers Built by

NONE.

Installed by Calson SPS&Co Ltd

at

-

Dundee No 495.

Donkey

COCHRAN & CO (ANNAN) LTD.

at

ANNAN

Date of Completion

16-4-26.

First Visit *4-6-25.*

Last Visit *16-4-26.*

Total Visits *27*

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RECIPROCATING ENGINES.

Works No. 1182-1183 No. of Sets 2 Description —FOUR STROKE CYCLE, SINGLE ACTING, DIESEL ENGINES DIRECTLY REVERSIBLE
AND FORCED LUBRICATION.No. of Cylinders each Engine 8 No. of Cranks 8Diars. of Cylinders 630^{mm} 24.8" Stroke 1100^{mm} 43.31"Cubic feet in each L.P. Cylinder 12.14Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr. —each Receiver? —
FLYWHEEL " 8'-7¹/₂" DIA 8.3 TONS
Type of H.P. Valves, —" 1st I.P. " BURMEISTER & WAIN'S EMERGENCY GOVERNOR" 2nd I.P. " OPERATED BY MAIN ENGINES ACTING ON" L.P. " SUCTION VALVES OF FUEL PUMPS." Valve Gear —" Condenser — Cooling Surface — sq. ft. —Diameter of Piston Rods (plain part) 7³/₄" Screwed part (bottom of thread) 3¹⁵/₃₂"Material " SMS.Diar. of Connecting Rods (smallest part) 8⁹/₃₂" Material SMS" Crosshead Gudgeons 9" Length of Bearing 9" Material —No. of Crosshead Bolts (each) 4 Diar. over Thrd. 2¹/₈" Thrds. per inch — Material Steel" Crank Pin " 2 " 3¹⁵/₃₂" " — " —" Main Bearings 10 Lengths 1'-2¹/₈" AND 1'-4³/₄"" Bolts in each 4 Diar. over Thread 2¹/₂" Threads per inch — Material STEEL" Holding Down Bolts, each Engine 160 Diar. 1³/₈" No. of Metal Chocks 160Are the Engines bolted to the Tank Top or to a Built Seat? BUILT SEATAre the Bolts tapped through the Tank Top and fitted with Nuts Inside? —If not, how are they fitted? NUTS ONLY.DISTANCE BETWEEN EDGES OF MAIN BEARINGS 2'-11¹/₈"Connecting Rods, Forged by BURMEISTER & WAIN, LTDPiston " " "Crossheads, "Connecting Rods, Finished by "Piston " " "Crossheads, "Date of Harbour Trial 7-4-26." Trial Trip 16-4-26Trials run at FIRTH OF TAYWere the Engines tested to full power under Sea-going conditions? YES.If so, what was the I.H.P.? NO RECORD Revols. per min. 120.Pressure in 1st I.P. Receiver, — lbs., 2nd I.P., — lbs., L.P., — lbs., Vacuum, — ins.Speed on Trial NO RECORD.

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

data:—

Builders' estimated S.H.P. 3700 TOTAL Revols. per min. 125.Estimated Speed —MAXIMUM INITIAL PRESSURE = 500 lbs.EST. MEAN PRESSURE = 90 lbs.PISTONS ON MAIN ENGINES ARE COOLED BY LUBRICATING OIL.
OTHER PARTS BY SEA WATER.

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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 _____ Width _____ Pitch of Teeth _____
" 1st " Wheel _____

Estimated Pressure per lineal inch _____

Diam. of 2nd Reduction Pinion _____ Width _____ Pitch of Teeth _____
" 2nd " Wheel _____

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.

No. of Turbine Generators _____
Type of Turbine employed _____
Description of Generators _____
Diam. of 1st Reduction Pinion _____
Pitch of Teeth _____
Diam. of 2nd Reduction Pinion _____
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 _____



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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 — } Width — Pitch of Teeth —

" 1st " Wheel —

Estimated Pressure per lineal inch —

Diam. of 2nd Reduction Pinion —

" 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 EMERGENCY AIR COMPRESSORGenerators ONE - 2 STAGE VERTICAL STEAM DRIVENMotors BURMEISTER & WAIN LTD 1926Reduction Gear STROKE 3.15"STAGE 1 DIA. 4 1/8" PRESS 142 lbs/□"Turbine Spindles forged by 2 1.33" 853 lbs/□"

Wheels forged or cast by —

Reduction Gear Shafts forged by —

Wheels forged or cast by —

DESCRIPTION OF INSTALLATION.

2 MAIN AIR COMPRESSORSONE ON EACH MAIN ENGINE FORCED LUBRICATION DIRECT COUPLED TO FORWARD END OF CRANK SHAFT.STROKE 14.7" DIA. 10" PRESS 1100 lbsSTAGE 1 29.53" 85 lbs" 2 26.58" 356 "" 3 5.91" 1100 lbs4 AUX AIR COMPRESSORSONE ON EACH AUXILIARY ENGINE FORCED LUBRICATION DIRECT COUPLED TO FORWARD END OF CRANK SHAFT.STROKE 8.67" DIA. 10" PRESS 1100 lbsSTAGE 1 12.51" 85 lbs2 11.21" 242 lbs3 3.07" 1000 lbsREGULATING VALVES TO SUPPLY AIR AT PRESSURES FOR RESERVOIRS AND BOTTLES ON EACH ENGINE.

SKETCH OF CRANK SHAFT

If so, what Type is adopted?

THIS VESSEL HAS ENGINES WHICH ARE
"ALCINO"
DUPLICATES OF THOSE FOR T.S.O.

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No. of Blades each Propeller **4** Fitted or Solid? **FITTED**
 Material of Blades **BRONZE** Boss **C.I.**
 Diam. of Propellers **12'-9"** Pitch **12'-0"** Surface (each **50** S. ft.
 Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth **.77**

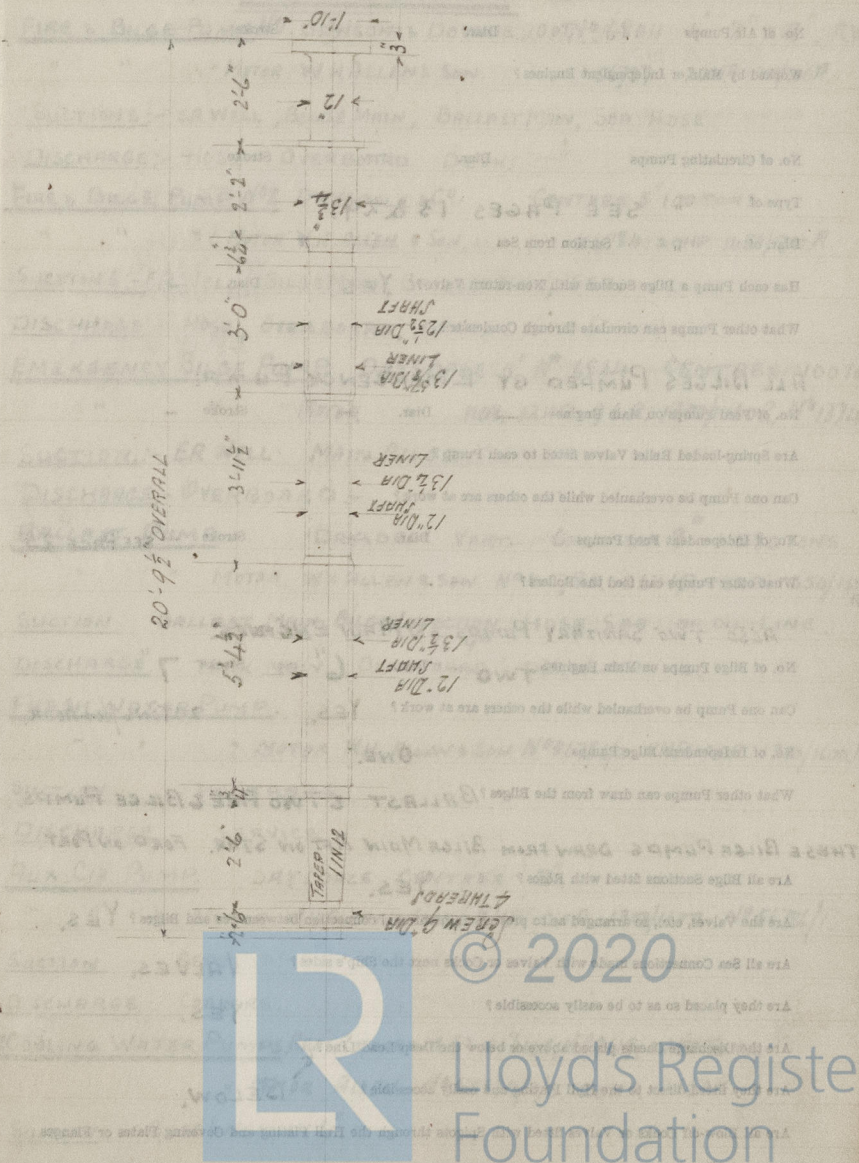
Crank Shafts Forged by	GUTHOFFENSHUTTE AV. STERKRAD		Material	15.
" Pins	"	"	"	"
" Webs	"	"	"	"
Thrust Shafts	"	"	"	"
Intermed. "	"	"	"	"
Propeller "	"	"	"	"

2 Crank	"	Finished by	
2 Thrust	"	"	CALEDON S. B & E. CO LTD.
6 Intermed. "	"	"	"
3 Propeller "	"	"	"

STAMP MARKS ON SHAFTS.

B.C.
N05635.
R.L.G.
2.9.25.

X SKETCH OF PROPELLER SHAFT.



PUMPS, ETC.

No. of Air Pumps — Diar. — Stroke —

Worked by Main or Independent Engines?

No. of Circulating Pumps — Diar. — Stroke —

Type of " SEE PAGES 13 & 29.

Diar. of " Suction from Sea —

Has each Pump a Bilge Suction with Non-return Valve? YES. Diar. —

What other Pumps can circulate through Condenser? —

ALL BILGES PUMPED BY EMERGENCY PUMP.

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? —

ALSO TWO SANITARY PUMPS ON MAIN ENGINES.

No. of Bilge Pumps on Main Engines TWO Diar. 6" Stroke 7"

Can one Pump be overhauled while the others are at work? YES. 20 TONS / per hour.

No. of Independent Bilge Pumps ONE.

What other Pumps can draw from the Bilges? BALLAST & TWO FIRE & BILGE PUMPS.

THESE BILGE PUMPS DRAW FROM BILGE MAIN AFT ON STAR. FORD ON PORT.

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? VALVES.

Are they placed so as to be easily accessible? YES.

Are the Discharge Chests placed above or below the Deep Load Line?

Are they fitted direct to the Hull Plating and easily accessible? BELOW.

Are all Blow-off Cocks or Valves fitted with Spigots through the Hull Plating and Covering Plates or Flanges

on the Outside? YES.

PUMPS & MOTORS

FIRE & BILGE PUMP N^o. DAWSON & DOWNIE 100 T^{ons} N^o 6804 5" 8" x 8" R.V.

" " " MOTOR W. H. ALLEN & SON. " 56787 20HP. 100/100R.

SUCTIONS:- ER WELL, BILGE MAIN, BALLAST MAIN, SEA HOSE.

DISCHARGE:- HOSE OVERBOARD DECK.

FIRE & BILGE PUMP N^o DRYSDALE & CO. CENTREX 5" 100 TONS.

" " " MOTOR W. H. ALLEN & SON. " 56784. 20HP. 1450/1700R.

SUCTIONS:- ER WELL, BILGE MAIN, BALLAST MAIN, SEA.

DISCHARGE:- HOSE, OVERBOARD, DECK.

EMERGENCY BILGE PUMP. DRYSDALE 5" N^o 6844. CENTREX 100 TONS.

" " " MOTOR " 110V. 12HP. 96 A. 1300/1450R. N^o 1374.

SUCTION:- ER WELL MAIN BILGE

DISCHARGE:- OVERBOARD.

BALLAST PUMP DRYSDALE VERT. CENTREX 8" 280 TONS.

" " " MOTOR. W. H. ALLEN & SON. N^o 56785. 35HP. 132A. 1350/1550R.

SUCTION BALLAST MAIN, BILGE INJECTION, HOSE, SEA. OR OIL LINE.

DISCHARGE TANK MAIN, OVERBOARD. D.S. OIL TANKS.

FRESH WATER PUMP.

" " " MOTOR W. H. ALLEN & SON N^o 56786/2 5HP. 20A. 1300/1600R.

SUCTION FW TANKS.

DISCHARGE SERVICE.

AUX. CIR. PUMP. DRYSDALE CENTREX - 3".

" " " MOTOR. W. H. ALLEN & SON 5HP. 20A. 1300/1600. N^o 56786/1.

SUCTION SEA. DRYSDALE 300T.

DISCHARGE COOLERS.

2 COOLING WATER PUMPS. REBS ROTABO M. C. P. 6" H^{yd}. N^o 949. 150 TONS.

" MOTOR ALLEN N^o 55874/2/3. 20HP. 1150R.

SUCTION. BILGE INJECTION 6".

DISCHARGE COOLERS.

SEE PAGE 29.

AIR BOILERS. RESERVOIRS.

Works No. 2 104793 104794 104799 104800

RESERVOIRS. Type CYLINDRICAL

Single or Double-ended —

No. of Furnaces in each —

Type of Furnaces —

Date when Plan approved 26.12.24.

Approved Working Pressure 355lbs.

Hydraulic Test Pressure 600lbs.

Date of Hydraulic Test 28.5.25.

when Safety Valves set 14.4.26.

Pressure at which Valves were set 355lbs.

Date of Accumulation Test —

Maximum Pressure under Accumulation Test —

System of Draught —

Can Boilers be worked separately? YES

Makers of Plates —

Stay Bars —

Rivets —

Furnaces —

Greatest Internal Diam. of Boilers 6'-0 $\frac{3}{16}$ "

Length 29'-0 $\frac{3}{8}$ "

Square Feet of Heating Surface each Boiler 750 CF CAPACITY.

Grate —

No. of Safety Valves each Boiler 2

Are the Safety Valves fitted with Easing Gear? NO.

No. of Pressure Gauges, each Boiler YES

Test Cocks —

Salinometer Cocks —

BC TEST.

NO 3244.
WP 355lbs
TP 600lbs
JMP
28.5.25

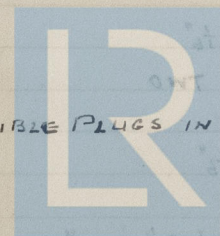
2. AIR BOTTLES.

SIEMENS MARTIN STEEL SOLID DRAWN CYLINDRICAL

No	INT. DIA.	LENGTH	THICK	CAPACITY	PRESS
A 2 SPARE	17 $\frac{3}{4}$ "	10'-8 $\frac{5}{8}$ "	$\frac{5}{16}$ "	450 LITRES	65 $\frac{Kg}{CM^2}$
B 2 M.E.	15 $\frac{3}{4}$ "	7'-1 $\frac{1}{4}$ "	"	225 "	"
C 4 AUX.	7 $\frac{1}{4}$ "	4'-1 $\frac{1}{2}$ "	$\frac{3}{16}$ "	30	"

A. NO 104793	2000lbs TEST	8.10.25.	3.0.T.
104794.	"	"	"
B. 104795	2000lbs "	21.5.25.	"
104796	"	"	"
C. 104797	2000lbs.	11.6.25.	"
104798	"	"	"
104799	"	17.6.25.	"
104800.	"	"	"

MATERIAL MADE BY CHESTERFIELD TUBE CO.

THREE FUSIBLE PLUGS IN EACH RESERVOIR 10 $\frac{1}{16}$ " DIA.

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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 **THREE**

" Plates in each Strake **ONE**

Thickness of Shell Plates Approved **1"**

" " in Boilers **1"**

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

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

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

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

Thickness of outside Butt Straps **3/4"**

" inside **7/8"**

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

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

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

Diar. of Rivet Holes **1 1/2"** Pitch **7 1/2"**

No. of Rows of Rivets in Centre Circumferential Seams **THREE.**

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

Diar. of Rivet Holes **1 1/4"** Pitch **4-3/4"**

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

Are these Seams Hand or Machine riveted?

Diar. of Rivet Holes **1 1/4"** Pitch **4 1/6"**

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

Are these Seams Hand or Machine Riveted?

Diar. of Rivet Holes **1 1/4"** Pitch **4 1/6"**

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

Dimensions of Compensating Rings **2'-9" x 3'-2" x 1"**

DATE OF TEST **17**

2 DAILY SUPPLY TANKS. 30/lbs 1-7-25.

1 GRAVITY " " " "

1 CLEAN OIL TANK. 15/lbs 4-7-25.

OIL PIPE LINE IN PIPE TUNNEL 30/lbs 23-3-26

" " " " ENG. ROOM. " 29-3-26.

**OIL FUEL BY GRAVITY FROM TANK THROUGH ELECTRIC HEATER
TO SEPARATOR AND PUMPED TO D.S. TANKS**



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Thickness of End Plates in Steam Space Approved

 $\frac{5}{16}$ "

" " " " " in Boilers

 $\frac{5}{16}$ "

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

Threads per Inch

Diar. of Stays Approved

" " " " " in Boilers

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 Wide Spaces between Fireboxes

" " " " " in Boilers

Thickness of Stay Tubes

" " " " " in Boilers

Material of Tubes

Are Stay Tubes fitted with Nuts at Front End?

Thickness of Back End Plates 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

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 —

" " " " 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 —



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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.C. Sides

Diam. " " Approved — Threads per Inch —

" " " in Boilers —

Material " " —

Thickness of Combustion Chamber Backs Approved —

" " " " in Boilers —

Pitch of Screwed Stays in C.C. Backs

Diam. " " Approved — Threads per Inch —

" " " in Boilers —

Material " " —

Are all Screwed Stays fitted with Nuts inside C.C. ? —

Thickness of Combustion Chamber Bottoms —

No. of Girders over each Wing Chamber —

" " " " " " —

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 ONE Type CYLINDRICAL MULTITUBULAR No. 100

Height of Boiler Crown above Fire Grate 12'-0"

Are Boiler Crown Flat or Dished? DISHED

Internal Radius of Dished Ends 3'-0"

Description of Seams in Boiler Crown SINGLE IN SADDLE STRAIGHT

Diam. of River Holes 2" Pitch 2"

Height of Firebox Crown above Fire Grate 2'-6"

Are Firebox Crown Flat or Dished? DISHED

Internal Radius of Dished Crown 2'-6"

No. of Crown Stays 10

Internal Diam. of Firebox at Top 11.5" Pitch 11.5"

No. of Water Tubes 24

Material of Water Tubes STEEL

Size of Manhole in Head 24" x 16" x 1/2"

Thickness of Connecting Ring 2'-0" x 2'-0" x 1/2"

Heating surface each boiler 400 sq. ft.

Are all Screwed Stays fitted with Nuts inside C.C. ?

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber

" " " " " " " "

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tubes, each Boiler

Size of Lower Manholes



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VERTICAL DONKEY BOILERS.

No. of Boilers ONE Type CYLINDRICAL MULTITUBULAR No 9759.
 Greatest Int. Diar. 6'-0" Height 15'-9"
 Height of Boiler Crown above Fire Grate 12'-0"
 Are Boiler Crowns Flat or Dished? DISHED.
 Internal Radius of Dished Ends 3'-0" Thickness of Plates $\frac{13}{16}$ "
 Description of Seams in Boiler Crowns SINGLE IN SECOND STRAKE.
 Diar. of Rivet Holes $\frac{25}{32}$ " Pitch 2" Width of Overlap $2\frac{3}{8}$ "
 Height of Firebox Crowns above Fire Grate 2'-6"
 Are Firebox Crowns Flat or Dished? DISHED
 External Radius of Dished Crowns 2'-6" Thickness of Plates $\frac{1}{2}$ "
 No. of Crown Stays NO. Diar. HEMI. Material
 External Diar. of Firebox at Top HEMISPHER Bottom
 No. of Water Tubes FIRE 112 PLAIN Ext. Diar. $2\frac{1}{2}$ " Thickness 11 LSG.
24 STAY STEEL $\frac{11}{32}$ "
 Material of Water Tubes
 Size of Manhole in Shell 16" x 12"
 Dimensions of Compensating Ring 2'-4" x 2'-0"
 Heating Surface, each Boiler 400 $\frac{1}{2}$ Grate Surface OIL FIRED.

SUPERHEATERS.

Description of Superheaters NONE
 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 —

DONKEY BOILER MADE BY COCHRAN & CO (ANNAN) LTD
 PRESSURE 100 lbs WP
 SAFETY VALVES 2-2" SET ON 13TH APRIL 1926.

B.C. TEST

No 4923
 T.P. 200 lbs
 WP 100 lbs
 RLG
8.9.25

OIL BURNER UNIT.

HUTCHISON'S TURBINE OIL BURNER No 44.
 MOTOR BY HEITH BLACKMAN. 110V. 10A. No 2720.

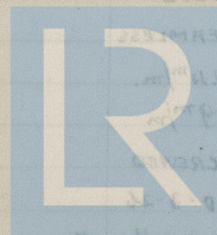
FEED WATER PUMP.

DAWSON & DOWNIE 4" x 2 3/4" x 5" No 6803.

SUCTION BOILER FEED TANK SEA.

DISCHARGE BOILER.

FEED INJECTOR. No 94398 5 1/2" M DIA.



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STARTING & BLAST AIR 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

DONKEY STEAM

HEATING COILS.

3
COPPER

SEAMLESS

3"

12 W.G.

BRAZED

7-12-25

250 lbs.
J.M.P.2 Sealing
T1 quantity
tanks.

Nos 829

DB tanks

16-3-26.

200 lbs

R.L.G.



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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.	—	Type	—	Size	—
Makers	—				
Working Pressure	—	Test Pressure	—	Date of Test	—

FEED WATER FILTERS.

No.	—	Type	—	Size	—
Makers	—				
Working Pressure	—	Test Pressure	—	Date of Test	—

CONT LIST OF DONKEY PUMPS.

2. FORCED LUBRICATION PUMPS B&W.

" " " MOTOR. ALLEN 20HP. 55873/3/4. 500R.

TRANSFER OIL PUMP. B&W.

" " " MOTOR. WHALEN. 55874 20HP. 78A. 1000R.

SUCTION. OIL OR BALLAST MAIN LINES (WITH BLANK FLANGE) RESIDUE TANK

DISCHARGE. OIL FILLING, OIL MAIN, OIL MAIN. AFT

STEERING ENGINE. BROWN BROS. H 590. PUMP N° 21932
MOTORS. SUNDERLAND FORGE CO. N°S 30-31. 30HP. 525 REV

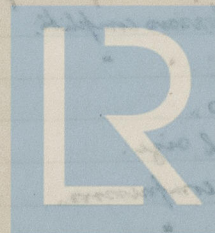
SEPARATOR. DE LAVAL N° 1830216 825 REV. CHAD BORN.
MOTOR. VERITY 220V. 600R. 4.4A. N° 22660.

EMERGENCY ENGINE. 16 KW.

3 CYL. 4 CYCLE PARAFFIN N° 2568 NEW PELAPONE ENG. CO.
DYNAMO. SUNDERLAND FORGE CO. 110V. 146K 800R. N° A 422.

WINDLASS. J H WILSON. & CO. N° 374.

MOTOR. LAWRENCE SCOTT 100HP. 400/280R. 370/260A
220V. N° A 2251.



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SPARE GEAR

No. of Top End Bolts.	No. of Bot. End Bolts.	No. of Cylinder Cover Studs	1 SET
" Coupling Bolts 1 SET	" Main Bearing Bolts 2 SET	COMPLETE	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 1 DB	" Fire Bars	" Feed Check Valves 1	
" Piston Rods	" Connecting Rods	" Valve Spindles	
" Air Pump Rods	" Air Pump Buckets	" Air Pump Valves	
" Cir. "	" Cir. "	" Cir. "	
" Crank Shafts	" Crank Pin Bushes TWO PAIR, WITH BOLTS.	" Crosshead Bushes TWO PAIR, WITH BOLTS.	
" Propeller Shafts ONE	" Propellers	" Propeller Blades TWO	
" Boiler Tubes	" Condenser Tubes	" Condenser Ferrules	

OTHER ARTICLES OF SPARE GEAR:—

Two cylinder liners. Two cylinder heads complete with studs & nuts.
 One piston complete with rod. One piston.
 Sixteen exhaust valves with cages, seats, spindles, springs, etc.
 Sixteen exhaust valve seats. One air inlet valve complete.
 Two starting valves complete. Eight fuel valves complete.
 Eight loose spindles for fuel valves. Eight loose bottoms.
 One collar each size with pins. Two sets spare parts fuel pumps.
 Eight fuel pump plungers. One set springs complete for one engine.
 One set leather collars & packings. Two spindles for overflow valves.
 One set air compressor connecting rods & cranks complete.
 " " " " main bearing " "
 Two sets " " valves & springs.
 " " " " piston rings each size.
 " cooling coils for main air compressors.
 Six LP suction valves & springs " "

Six LP discharge valves & springs for air compressors.

Two I.P. suction

" discharge

" HP suction

" discharge

One set of inter. rings for HP compressor piston

Half set valves and seats for one bilge pump.

" " " " sanitary pump.

One set coupling bolts for crank shaft

" " packing rings for piston and stuffing box.

One set safety valve discs for starting air receivers

One set of pad pieces for thrust blocks.

" " " liners

50 iron nuts & bolts.

12 brass



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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

FDR CREW PURPOSES ONLY

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

[illegible]

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

CIRCUIT.	Nº OF LIGHTS.	116.0	19/053.	580
17 AUX CIR PUMP		78.0	19/053	390
18 WORKSHOP		138.5	37/072	423
19 OIL PURIF		600.	61/102	600.

ALL AT 220 VOLTS.

THE FOLLOWING AT 110 VOLTS.

Nº. CIRCUIT.	Nº OF LIGHTS.	C.P.	CURRENT	SIZE	DENSITY	CON.	INS.
1 FORD & FANS.	59.	16	21.42	19/044	357.0	100.	2500
2 MIDSHIP "	53	16.	18.14	19/052	378.5	"	"
3. AFT "	42.	"	8.38	"	209.5	"	"
4. E.R.	120.	"	32.0.	19/064	53.3	"	"
5 "	11	400	20.0	19/082	50.0	"	"
6 CARGO.	78 18 4	16 100W 1000W	22.6 63.6	7/064 19/053	1004.4	"	"
7 EMERG.			14.6	37/093	636.0	"	"
110V. SHORE CONNECTION.			200.	37/083	584.0	"	"

EMERGENCY SWITCH BOARD.

1 NAVIGATION.	10	16	8.7	7/052	600.	"	"
2 GENERAL	33	16	8.16	19/052	204	"	"
3 BOATS. P	16	60W	8.8	7/052	606.89	"	"
4 " S.	16	60W	8.8	"	"	"	"
5 WIRELESS	-	-	20.0	7/064	888.8	"	"
6 EMER BILGE	-	-	96.0	19/083	960.	"	"
W/T DOORS.	-	-	INT.	7/064			

ELECTRIC LIGHTING.

Installation Fitted by **SUNDERLAND FORGE & ENG. CO LTD**

No. and Description of Dynamos **2. 18KW. 110V. COM. WOUND GENERATING SETS.**
4. 100KW. 220V. MULTIPOLAR WOUND INTER POLES.

Makers of Dynamos **W. H. ALLEN.**

Capacity **GENERATORS 455.** Amperes, at **220.** Volts, **300** Revols. per Min.

2 MOTOR GENERATOR 64 **110** **650**

Current Alternating or Continuous **CONTINUOUS.**

Single or Double Wire System **DOUBLE.**

Position of Dynamos **PLATFORM PORT SIDE ENGINE ROOM**

Main Switch Board " " "

No. of Circuits to which Switches are provided on Main Switch Board **10. INCLUDE 3 SPARES 110V**
23. " " 220V

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 RING MAIN SYSTEM			INTERMIT	350			
2 OFFICERS HEATING.			37/072	1066.6			
3 MIDSHIP WINCHES			61/093	-			
4 EUROPEAN GALLEY.			37/093	919.2			
5 MIDSHIP HEATING			"	834.4			
6 STEERING.			37/083	912.5			
7 BALLAST PUMP.			37/072	880.0			
8 FIRE & BILGE "			19/072	1040.0			
9 " " "			"	"			
10 COOLING			"	"			
11 " " "			"	"			
12 LUBRIC.			"	"			
13 " " "			"	"			
14 MOTOR-GENERATOR			19/083	590			
15 " " "			"	590			
16 P.W. PUMP.			"	340.			

Total No. of Lights **467.** No. of Motors driving Fans, &c. **45.** No. of Heaters **65.**

Current required for Motors and Heaters **2205.8** EXCLUSIVE OF WINDLASS & WINCHES.

PORT FOR. 2 SWITCHES., Stump mast house star. fwd 2 switches,
Windlass motor room 2 switches, Forward contactor house 2 switches
Steering gear house 2 switches, European galley 4 switches,
Native galley port 4 switches Amidship winches 1 switch
" " Star 2 " " Fwd 3 " , aft 2 switches
Amidship aft 3 switches, Offic acc. 4 switches, Rang. 5 switches
Emergency dynamo 6 switches.

Yes.

Yes

uit Yes.

Yes.

Yes.

Yes

Yes

Yes.

Yes.

All of

Lead covered armored braided

2

2

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

10

Deck Beams or Bulkheads Lead border 7 w/o glands

Done

D.W. Systems

Are the Dynamos, Motors, Main and Branch Cables, so placed that the Compasses are not injuriously affected by them? *Yes*

Yes

Yes.

What does the Resistance amount to?

• 5 MEG Ohms.

Is the Installation supplied with a Voltmeter?

" " " an Ampere Meter?

Date of Trial of complete Installation *6-7 April 1926* Duration of Trial *18 hours*

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

Robert H. Greig

MOTOR GENERATORS

Nº1. MOTOR SUNDERLAND FORGE CO. A165. 31HP. 118A. 675R. 220V.

GENERATOR 110V 20KW. 192A

N^o 2 MOTOR A167 31HP 118A 675R 220V

GENERATOR " " A168 182A 20KW 110V

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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?

If not, give details of the points of difference, and state when these were sanctioned by the Chief Surveyor.

Is the installation supplied with a Tolerant?

an Ampere Meter

Date of Trial of complete Installation

Have all the requirements of Section 12 been satisfactorily carried out?

Are the Materials used in the Construction of Engines and Boilers, so far as could be seen, sound and trustworthy?

Is the Workmanship throughout thoroughly satisfactory?

The above correctly describes the Machinery of the S.S.

as ascertained by ^{us}me from personal examination

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,

W. L. King
Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the 5th May 1926

Fees advised

Fees paid



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Secretary.

Tons—

MAIN BOILER

H.S. 24.0

DOCKERY BOILER

H.S. 24.0

ENGINE

L.P.C. 24.0

Testing & ...

2

Expenses

Total 2

It is submitted that this Report be approved.

[Signature]

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

1910

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

...

...

Form advised

Form paid

[Signature]

...



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