

No. 2089

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 2025 No. in Register Book 3365

S.S. "KINGDOC"

Makers of Engines MESSRS SWAN HUNTER & W. R. LTD.

Works No. 1236

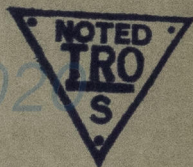
Makers of Main Boilers MESSRS SWAN HUNTER & W. R. LTD.

Works No. 1236

Makers of Donkey Boiler

Works No.

MACHINERY.



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No.

THE BRITISH CORPORATION FOR THE SURVEY

AND

REGISTRY OF SHIPPING.

Report No. No. in Register Book

Received at Head Office *10th August 1928*

Surveyor's Report on the New Engines, Boilers, and Auxiliary Machinery of the *Single Screw Steam* **KINGDOC**

Official No. *149429*

Port of Registry *Port William*

Registered Owners *Paterson Steamships Ltd*

Engines Built by *Messrs Swan Hunter & W.B. Ltd.*
at *Neptune Works, Newcastle-on-Tyne.*
Main Boilers Built by *Messrs Swan Hunter & W.B. Ltd.*
at *Neptune Works, Newcastle-on-Tyne.*

Donkey " " *none fitted.*

at *none fitted.*

Date of Completion *30th April 1927*

First Visit *27.4.26* Last Visit *30.4.27* Total Visits *55*



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RECIPROCATING ENGINES.

Works No. *1236* No. of Sets *One* Description *Inverted.*
Triple expansion direct acting, Surface Condensing.

No. of Cylinders each Engine *3* No. of Cranks *3*
 Diars. 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?

Yes
Yes

" " " each Receiver?

Type of H.P. Valves, *Piston Valve.*
Tric Slide Valve

" 1st L.P. "

" 2nd L.P. "

" L.P. "

" Valve Gear

Double ported slide Valve
Stephenson Link.

" Condenser

Circular, two flow.

Cooling Surface *400* sq. ft.

Diameter of Piston Rods (plain part) *3 7/8"* Screwed part (bottom of thread) *2.66"*

Material *Forged Steel.*

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

" Crosshead Gudgeons *4 1/2"* Length of Bearing *6 1/2"* Material *Forged Steel.*

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

" Crank Pin " *2* " *2 1/4"* " *6* " *Steel.*

" Main Bearings *6* Lengths *8"*

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

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

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

Tank Top.
Yes.

Are the Bolts tapped through the Tank Top and fitted with Nuts Inside?

If not, how are they fitted?

Connecting Rods, Forged by

Wm J. Spencer & Son Ltd. Newburn.

Piston " "

-do-

Crossheads,

Connecting Rods, Finished by

Thos Swan Hunter & W.R. Ltd.

Piston " "

do

Crossheads,

do

Date of Harbour Trial

25th April 1927.

" Trial Trip

25th April 1927

30th April 1927.

Trials run at

In North Sea off Rain Junc.

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

Yes.

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

803.

Revs. per min. *91*

Pressure in 1st L.P. Receiver, *72* lbs., 2nd L.P.,

lbs., L.P., *10* lbs., Vacuum, *25* ins.

Speed on Trial *8.16*

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

data:—

Builders' estimated L.H.P. ☒

Revs. per min. ☒

Estimated Speed ☒



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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 Astern

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

TURBO-ELECTRIC MACHINERY. DESCRIPTION OF INSTALLATION.

No. of Turbo-Generating Sets

Type of Turbines employed

Description of Generators

No. of Motors driving Propeller Shafts

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

" " " " Wheel

Estimated Pressure per lineal inch

Diam. of 2nd Reduction Pinion

" " " " Wheel

Estimated Pressure per lineal inch

Revs. per min. of Generators at Full Power

" " " " Motors

" " " " 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.



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SHAFTING.

Are the Crank Shafts Built or Solid?

Built

No. of Lengths in each

One

Angle of Cranks

120°

Diar. by Rule

8.26"

Actual

8 3/8"

In Way of Webs

8 7/8"

" of Crank Pins

8 3/8"

Length between Webs

8 1/4"

Greatest Width of Crank Webs

16 1/2"

Thickness

5 1/4"

Least

11 3/4"

"

5 1/4"

Diar. of Keys in Crank Webs

1 3/4"

Length

3 3/4"

" Dowels in Crank Pins

Length

Screwed or Plain

plain

No. of Bolts each Coupling

6

Diar. at Mid Length

2"

Diar. of Pitch Circle

12 7/8"

Greatest Distance from Edge of Main Bearing to Crank Web

3 1/16"

Type of Thrust Blocks

Multi-collar horseshoe.

No. " Rings

4

Diar. of Thrust Shafts at bottom of Collars

8 3/8"

No. of Collars

4

" " Forward Coupling

8 3/8"

At Aft Coupling

8 3/8"

Diar. of Intermediate Shafting by Rule

7.858"

Actual

No. of Lengths

—

No. of Bolts, each Coupling

Diar. at Mid Length

Diar. of Pitch Circle

Diar. of Propeller Shafts by Rule

8.878"

Actual

9 7/8"

At Couplings

9 8"

Are Propeller Shafts fitted with Continuous Brass Liners?

yes

Diar. over Liners

10 3/16" - 10 5/16"

Length of After Bearings

3'-0"

Of what Material are the After Bearings composed?

Rignum Vitae.

Are Means provided for lubricating the After Bearings with Oil?

no

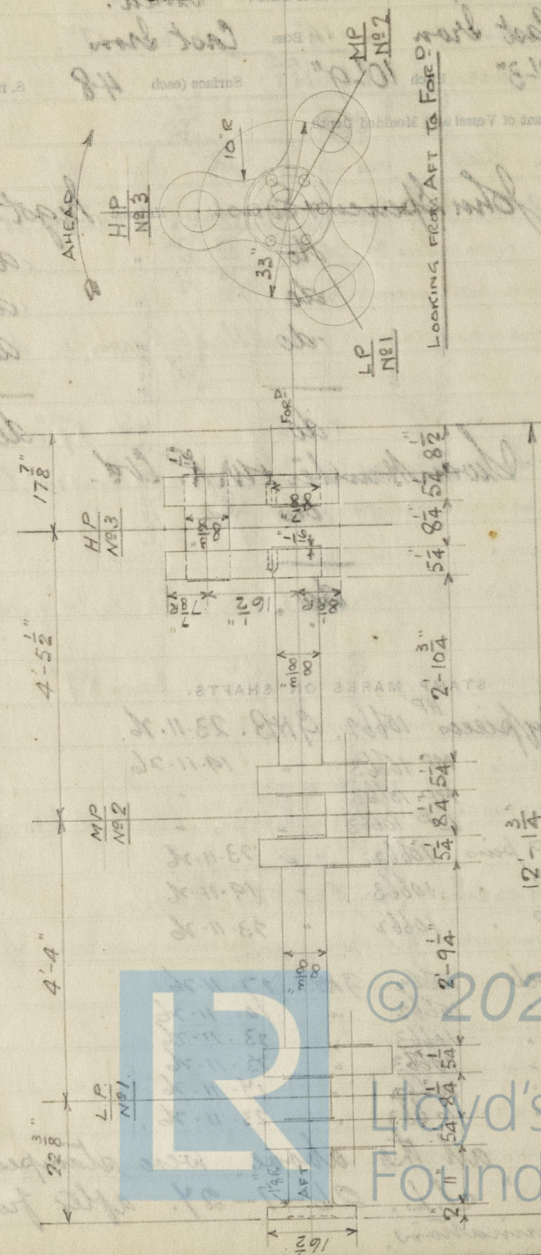
" " to prevent Sea Water entering the Stern Tubes?

no

If so, what Type is adopted?

—

SKETCH OF CRANK SHAFT.



No. of Blades each Propeller *4* Fitted or Solid? *Fitted.*
 Material of Blades *Cast Iron* Boss *Cast Iron*
 Diam. of Propellers *12'-3"* Pitch *10'-9"* Surface (each *48* S. ft.
 Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth

Crank Shafts Forged by *John Spencer & Sons.* Material *Ingot Steel.*
 " Pins " *do* " *do*
 " Webs " *do* " *do*
 Thrust Shafts " *do* " *do*
 Intermed. " " *do* " *do*
 Propeller " " *do* " *do*
 Crank " Finished by *Swan Hunter & W. R. Ord.*
 Thrust " " *do*
 Intermed. " " *do*
 Propeller " " *do*

STAMP MARKS ON SHAFTS.

Crank shaft body pieces *HP 10662. GMB. 23.11.76.*

MP 10663 " 19.11.76

MP 10663 " "

LP 10663 " "

HP pins 10662 " 23.11.76

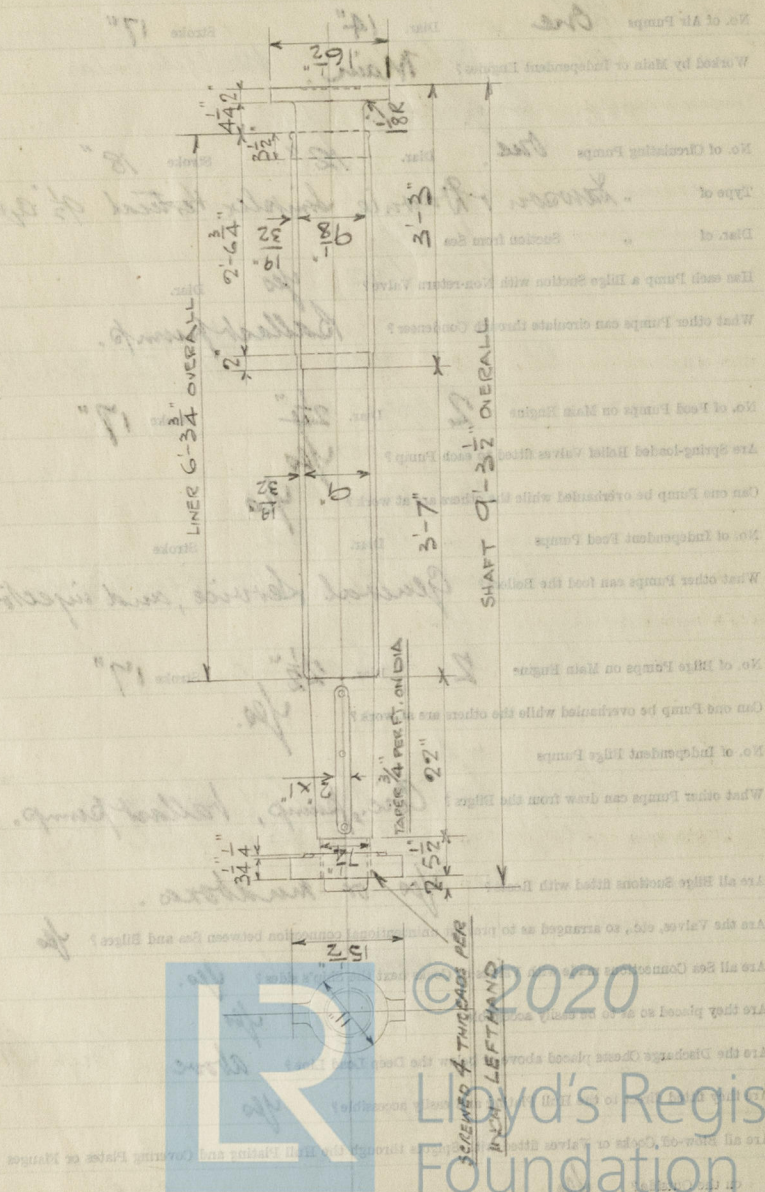
MP " 10663 " 19.11.76

LP " 10662 " 23.11.76

1. HP web 10662 GMB 17.11.76
 1. HP. " 10662 " 10.11.76
 1. MP. " 10663 " 23.11.76
 1. MP. " 10663 " 23.11.76
 1. LP. " 10662 " 19.11.76
 1. LP. " 10663 " 23.11.76

all the above. were stamped
 " J.L. 26-1-27. after final
 examination.

SKETCH OF PROPELLER SHAFT.



Worked by Main or Independent Engines? *Main*

Diar. of	"	Suction from Sea
1891	1892	1893
1894	1895	1896
1897	1898	1899
1900	1901	1902
1903	1904	1905
1906	1907	1908
1909	1910	1911
1912	1913	1914
1915	1916	1917
1918	1919	1920
1921	1922	1923
1924	1925	1926
1927	1928	1929
1930	1931	1932
1933	1934	1935
1936	1937	1938
1939	1940	1941
1942	1943	1944
1945	1946	1947
1948	1949	1950
1951	1952	1953
1954	1955	1956
1957	1958	1959
1960	1961	1962
1963	1964	1965
1966	1967	1968
1969	1970	1971
1972	1973	1974
1975	1976	1977
1978	1979	1980
1981	1982	1983
1984	1985	1986
1987	1988	1989
1990	1991	1992
1993	1994	1995
1996	1997	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	2	

Has each Pump a Bilge Suction with Non-return Valve? *yes* Diar.

What other Pumps can circulate through Condenser? *Ballast pumps.*

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? *General Service, and injector.*

Can one Pump be overhauled while the others are at work?

No. of Independent Bilge Pumps

What other Pumps can draw from the Bilges? *Circ. pump, ballast pump.*

Are all Bilge Suctions fitted with Roses? *Yes or mudboxes.*

Are the Valves, etc., so arranged as to prevent unintentional connection between Sea and Bilges? *Yes*

Are all Sea Connections made with Valves or Cocks next the Ship's sides? *Yes.*

Are they placed so as to be easily accessible?

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

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?

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BOILERS

Works No. 1236.

No. of Boilers Two. Type Cylindrical Multitubular.

Single or Double-ended Single ended.

No. of Furnaces in each Two.

Type of Furnaces Beighton.

Date when Plan approved 1. 11. 26.

Approved Working Pressure 180 W.D.

Hydraulic Test Pressure 320 "

Date of Hydraulic Test Bt. 3108 320 lb, 180 W.D., J.L. 28.3.27.

" when Safety Valves set 25th April 1927.

Pressure at which Valves were set 185 W.D.

Date of Accumulation Test 25th April 1927.

Maximum Pressure under Accumulation Test 184 W.D.

System of Draught Forced. C.A. Howdens System.

Can Boilers be worked separately? Ys.

Makers of Plates Steel Coy of Scotland.

" Stay Bars - do -

" Rivets Rivet, Bolt & Nut Coy. Glasgow.

" Furnaces Beighton patent Flue Tube Coy. Leeds.

Greatest Internal Diam. of Boilers 10' - 18³/₈"

" " Length " 10' - 9¹⁵/₁₆"

Square Feet of Heating Surface each Boiler ~~1068~~ 1068 ft²

" " Grate " " 32 ft².

No. of Safety Valves each Boiler 2. Rule Diam. Actual 2 (High lift)

Are the Safety Valves fitted with Easing Gear? Ys.

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

" Test Cocks " 3 " Salinometer Cocks One

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

Are the Water Gauge Pillars fitted direct to the Boiler Shells or connected by Pipes? *By pipes*

Are these Pipes connected to Boilers by Cocks or Valves? *Cocks.*

Are Blow-off Cocks or Valves fitted on Boiler Shells? *Back end plate.*

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

Plates in each Strake *One*

Thickness of Shell Plates Approved *$\frac{13}{16}$ "*

in Boilers *$\frac{13}{16}$ full.*

Are the Rivets Iron or Steel? *Steel*

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

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

Are the Double Butt Straps of equal width? *$\frac{1}{2}$ in.*

Thickness of outside Butt Straps *$\frac{5}{8}$ "*

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

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

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

No. of Rivets in a Pitch *Five.*

Diam. of Rivet Holes *$\frac{1}{8}$ "* Pitch *$6\frac{1}{8}$ "*

No. of Rows of Rivets in Centre Circumferential Seams *no centre seam.*

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.*

Diam. of Rivet Holes *1"* Pitch *3.49"*

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

Are these Seams Hand or Machine Riveted? *Machine*

Diam. of Rivet Holes *1"* Pitch *3.49.*

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

Dimensions of Compensating Rings *3'-2 $\frac{1}{2}$ " x 2'-8 $\frac{1}{2}$ "*



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Thickness of End Plates in Steam Space Approved

 $\frac{1}{32}$ "

" " " " " in Boilers

 $\frac{1}{32}$ " full

Pitch of Steam Space Stays

18" x 14"

Diar. " " " " Approved

 $2\frac{3}{4}$

Threads per Inch

6

" " " " " in Boilers

 $2\frac{3}{4}$

"

6

Material of " " "

Steel.

How are Stays Secured?

Nuts inside & outside and washers.

Diar. and Thickness of Loose Washers on End Plates

6" x $\frac{1}{4}$ "

" " " Riveted " " "

✓

Width " " Doubling Strips " "

✓

Thickness of Middle Back End Plates Approved

 $\frac{1}{32}$ "

" " " " " in Boilers

 $\frac{1}{32}$ "

Thickness of Doublings in Wide Spaces between Fireboxes

None

Pitch of Stays at

" " "

13 $\frac{1}{4}$ " x 9"

Diar. of Stays Approved

1 $\frac{7}{8}$ + 1 $\frac{3}{4}$

Threads per Inch

9

" " " in Boilers

-do-

"

-do-

Material "

Steel.

Are Stays fitted with Nuts outside?

Yes.

Thickness of Back End Plates at Bottom Approved

 $\frac{1}{32}$ "

" " " " " in Boilers

 $\frac{1}{32}$ " full.

Pitch of Stays at Wide Spaces between Fireboxes

13 $\frac{1}{4}$ " x 9"

Thickness of Doublings in " "

None.

Thickness of Front End Plates at Bottom Approved

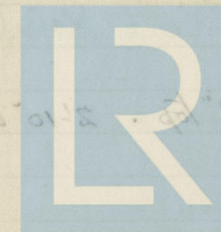
 $\frac{1}{32}$ "

" " " " " in Boilers

 $\frac{1}{32}$ "

No. of Longitudinal Stays in Spaces between Furnaces

One.



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Diar. of Screwed Stays Approved $1\frac{3}{4}$ Threads per Inch 9.

" " " in Boilers $1\frac{3}{4}$
Material " " Steel.

Thickness of Combustion Chamber Sides Approved $11\frac{1}{16}$
" " " " in Boilers $11\frac{1}{16}$

Pitch of Screwed Stays in C.C. Sides 10×9
Diar. " " Approved $1\frac{3}{4}$ Threads per Inch 9
" " " in Boilers $1\frac{3}{4}$
Material " " Steel.

Thickness of Combustion Chamber Backs Approved $11\frac{1}{16}$
" " " " in Boilers $11\frac{1}{16}$ full.

Pitch of Screwed Stays in C.C. Backs $9\frac{3}{4} \times 9$
Diar. " " Approved $1\frac{3}{8}$ & $1\frac{3}{4}$ Threads per Inch 9
" " " in Boilers - No -
Material " " Steel.

Are all Screwed Stays fitted with Nuts inside C.C.? Yes.
Thickness of Combustion Chamber Bottoms $11\frac{1}{16}$

No. of Girders over each Wing Chamber Four
" " " Centre " No Centre (2 chambers).
Depth and Thickness of Girders $8\frac{3}{8} \times 5\frac{7}{8}$. (2 plates).

Material of Girders Steel.
No. of Stays in each Two.

No. of Tubes, each Boiler 172
Size of Lower Manholes 15×11

VERTICAL DONKEY BOILERS

No. of Boilers
Type
Greatest Int. Diam.
Height
Height of Boiler Crown above Fire Grate
Are Boilers Crowned Flat or Spherical?
Internal Radius of Dished Ends
Thickness of Plates
Description of Beams in Boiler Crown
Diam. of Rivet Heads
Height of Rivet Heads above Fire Grate
Are Firebricks Crowned Flat or Dished?
External Radius of Dished Crowns
No. of Crown Stays
Diam.
Material
Thickness of Plates
External Diam. of Rivet at Top
Bottom
No. of Water Pipes
Int. Diam.
Material of Water Pipes
Size of Manholes in Shell
Dimensions of Combustion Chamber
Heating Surface each Boiler
Gross Surface

SUPERHEATERS

Description of Superheaters

Where situated?

Which Boilers are connected to superheaters?
Can superheaters be shut off while Boilers are working?

No. of Boilers fitted to each superheater



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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 Diar.

External Diar.

Thickness

How are Joints secured?

Date of Hydraulic Test

Test Pressure

No. of Pipes

Material

Internal Diar.

External Diar.

Thickness

How are Joints secured?

Date of Hydraulic Test

Test Pressure



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MAIN STEAM PIPES.

No. of Lengths

3

Material

Steel

Brazed, Welded or Seamless

S.S.

Internal Diam.

3 1/2"

Thickness

1/4"

How are Flanges secured?

Bolts & Nuts

Date of Hydraulic Test

29.4.77

Test Pressure

540 lbs/sq. in.

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

STEAM PIPES

1. Main steam pipe from boiler to engine room. Length 100 ft. Material Steel. Thickness 1/2". Internal diam. 4". Brazed. Flanges secured by bolts & nuts. Date of hydraulic test 29.4.77. Test pressure 540 lbs/sq. in.

2. Main steam pipe from boiler to engine room. Length 100 ft. Material Steel. Thickness 1/2". Internal diam. 4". Brazed. Flanges secured by bolts & nuts. Date of hydraulic test 29.4.77. Test pressure 540 lbs/sq. in.

3. Main steam pipe from boiler to engine room. Length 100 ft. Material Steel. Thickness 1/2". Internal diam. 4". Brazed. Flanges secured by bolts & nuts. Date of hydraulic test 29.4.77. Test pressure 540 lbs/sq. in.



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EVAPORATORS.

No. Type *None fitted* Tons per Day
 Makers
 Working Pressure Test Pressure Date of Test
 Date of Test of Safety Valves under Steam

FEED WATER HEATERS.

No. *one* Type *Exhaust heater*
 Makers *Holden & Brooke*
 Working Pressure *180* Test Pressure *450* Date of Test

No Records

FEED WATER FILTERS.

No. *one* Type *Gravity filter* H.P. Size *2"*
 Makers *By Watson*
 Working Pressure *180 lbs.* Test Pressure *450 lbs.* Date of Test *1.2.27.*

LIST OF DONKEY PUMPS.

- Circulating Vertical Complex Dawson & Downie*
9 1/2" x 12" x 18 Stroke
 1 *Ballast Dky Dawson & Downie, Vertical duplex.*
9" x 11" x 10" Stroke
 1 *Gph. Cervice Dawson & Downie*
Vertical duplex. 5" x 3 1/2" x 6" Stk.
 1 *Sanitary pump D & D. horizontal duplex.*
4 1/2" x 2 3/4" x 4" stroke.
 1 *Fresh water D & D horizontal duplex.*
4 1/2" x 2 3/4" x 4" stroke.
 1 *Greshams No 9 injector.*

The main circulating pump is
a Dawson & Downie - Simplex Vertical
pump 9 1/2" x 12" x 18" stroke.



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LIST OF SPARE GEAR.

No. of Top End Bolts.	2	No. of Bot. End Bolts.	2	No. of Cylinder Cover Studs	
" Coupling Bolts	6	" Main Bearing Bolts	2	" Valve Chest "	
" Junk Ring Bolts	6	" Feed Pump Valves	2	" Bilge Pump Valves	2
" H.P. Piston Rings		" I.P. Piston Rings		" L.P. Piston Rings	
" " Springs		" " Springs		" " Springs	
" Safety Valve "	1	" Fire Bars		" Feed Check Valves	1
" Piston Rods		" Connecting Rods		" Valve Spindles	
" Air Pump Rods		" Air Pump Buckets		" Air Pump Valves	3
" Clr. "		" Clr. "		" Clr. "	
" Crank Shafts		" Crank Pin Bushes		" Crosshead Bushes	
" Propeller Shafts		" Propellers		" Propeller Blades	2
" Boiler Tubes	3	" Condenser Tubes	3	" Condenser Ferrules	20

OTHER ARTICLES OF SPARE GEAR:—

1 set of donkey pump valves,
 half set of fire bars, including wing bars for one
 boiler, 6 lubricator glasses & washers 1 doz gauge
 glasses & washers, 12 assorted iron studs & nuts
 for engines, 6 assorted brass studs and nuts for
 engines, 36 assorted common bolts & nuts.
 1 escape valve spring of each size (4 off)

REFRIGERATORS



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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

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.

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

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ELECTRIC LIGHTING.

Installation Fitted by *Hoan Hunter W.R. D. Wallscend.*
 No. and Description of Dynamos *1- 10. K.W. Compound wound.*
 Makers of Dynamos *Cumderland Forge Eng. Co. dynamo.*
 Capacity " *10KW-91 Amperes, at 110. Volts, 380 Revols. per Min.*
 Current Alternating or Continuous *Continuous.*
 Single or Double Wire System *Double wire.*
 Position of Dynamos *Starboard Engine-room*
 " Main Switch Board *near Dynamo.*
 No. of Circuits to which Switches are provided on Main Switch Board *14.*

Particulars of these Circuits:—

Circuit.	Number of Lights.	Genetic Power.	Current Required. Ampe.	Size of Conductor.	Current Density.	Conductivity of Conductor.	Insulation Resistance per Mile.
		<i>Amps</i>	<i>C.P.</i>				<i>megohms per mile.</i>
Navigation	{ 4		60W			100%	
	{ 2	5.0	30W	7/029	2500		1,750 Ω
Ed., Accom.,	{ 16		30W				
	{ 14	12.0	16C.P.	7/044	1200		900 Ω
Aft., accom.,	{ 16		30W.				
	{ 26	18.0	16C.P.	7/044	1800		900 Ω
Eng. Blk	{ 13		30. W.				
rooms.	{ 3	7.0	16C.P.	7/029.	3500		1750 Ω

Total No. of Lights *94* 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

*None fitted.**Engine Room. Distribution Box.**4 circuits. 1 Boiler room, 2 Port & Starboard Eng. room
3, Starboard Engine Room, 4 Bottom Platform 3/029 wire.**Navigation Box. 5 circuits. 3/029**Forward accommodation 3 circuits. 3/029**After accommodation 5 circuits 3/029**1 - 3/036 (Cluster).*

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

*Lead covered & Armoured
Lead covered.**In tubing.**Lead covered in wood casing
Rubber bushes & N.T.
Hands*

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

is unimpaired? *None made.*

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?

Has the Insulation Resistance over the whole system been tested?

What does the Resistance amount to?

30,700 Ohms.

Ohms.

Is the Installation supplied with a Voltmeter?

" " " an Ampere Meter?

Date of Trial of complete Installation

25.4.27

Duration of Trial

6 hrs.

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



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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.	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.

John King
Chief Surveyor.

Approved by the Committee for the Class of M.B.S. on the 22nd August, 1923

Fees advised

Fees paid



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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.

"KINGDOC"

as ascertained by ^{me} from personal examination

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

NOTES ON THE PROCEEDINGS OF THE COMMITTEE FOR THE CLASS OF M.B.S. ON THE 10th OF APRIL 1914

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