

REPORT ON MACHINERY.

No. 92051.

4a.

of writing Report

When handed in at Local Office

2 JUNE 1927

Port of Liverpool

Received at London Office

in Survey held at

Birkenhead

Date, First Survey

29th Dec/25

Last Survey

30th May 1927

Book.

on the

Twin Screw Steamer "Arandora"

(Number of Vents 188)

Gross 12837
Tons Net 7818

er

Built at Birkenhead

By whom built Cammell, Laird & Co. Ltd.

When built 1927

ines made at

Birkenhead

By whom made Cammell, Laird & Co. Ltd.

when made 1927

ers made at

Birkenhead

By whom made Cammell, Laird & Co. Ltd.

when made 1927

Registered Horse Power

2078 NHP

Owners Blue Star Line (1920) Ltd.

Port belonging to London

ft Horse Power at Full Power 8400

Is Refrigerating Machinery fitted for cargo purposes Yes

Is Electric Light fitted Yes

COMBINE ENGINES, &c.

Description of Engines Twin Screw Single Reduction Turbine

No. of Turbines 6, including astern

eter of Rotor Shaft Journals, H.P.

5 1/2

L.P.

7

Diameter of Pinion Shafts 6 1/2

eter of Journals

6 1/2

Distance between Centres of Bearings 2' 5 3/4"

Diameter of Pitch Circle 7' 4 1/2"

eter of Wheel Shaft

16

Distance between Centres of Bearings 5' 1 1/2"

Diameter of Pitch Circle of Wheel 133' 7 1/2"

h of Face

36

Diameter of Thrust Shaft under Collars 14

Diameter of Tunnel Shaft as per rule 12' 9 1/2"

of Screw Shafts

2

Diameter of same as per rule 14' 2 1/4"

Diameter of Propellers 15' 6"

Pitch of Propellers 14' 0"

of Blades

4

State whether Moveable Yes

Total Surface 86 sq. ft.

Diameter of Rotor Drum, H.P. 19 1/2 L.P. 3 1/4 astern 2' 9"

ness at Bottom of Groove, H.P. Solid L.P. Lines

Astern

Revs. per Minute at Full Power, Turbine 2220

Propeller 124

DETAILS OF BLADING.

| H.P. | | | | L.P. | | | | ASTERN. | | | |
|-------------------|------------------|--------------|-------------------|------------------|--------------|-------------------|------------------|--------------|-------------------|------------------|--------------|
| HEIGHT OF BLADES. | DIAMETER AT TIP. | NO. OF ROWS. | HEIGHT OF BLADES. | DIAMETER AT TIP. | NO. OF ROWS. | HEIGHT OF BLADES. | DIAMETER AT TIP. | NO. OF ROWS. | HEIGHT OF BLADES. | DIAMETER AT TIP. | NO. OF ROWS. |
| 1 1/2 effective | 22 1/2 | 9 | 2 1/2 | 3' 0 1/2 | 3 | 1 1/2 | 2' 10 1/2 | 2 | 3 1/2 | 3' 10 1/2 | 2 |
| 1 3/4 | 23 1/2 | 8 | 3 | 3' 2 | 3 | 2 1/2 | 3' 0 3/4 | 2 | 3 1/2 | 3' 2 1/2 | 1 |
| 2 1/2 | 2' 0 | 7 | 3 1/2 | 3' 2 1/2 | 2 | 3 1/2 | 3' 2 1/2 | 2 | 3 1/2 | 3' 3 1/2 | 2 |
| 2 3/4 | 2' 1 | 7 | 3 3/4 | 3' 10 1/2 | 2 | 3 3/4 | 3' 3 1/2 | 2 | | | |
| 3 1/4 | 2' 2 1/2 | 7 | 4 1/2 | 3' 11 1/2 | 1 | | | | | | |
| | | | 4 3/4 | 4' 1 1/2 | 1 | | | | | | |
| | | | 5 1/2 | 4' 3 1/2 | 1 | | | | | | |
| | | | 6 1/2 | 4' 5 1/2 | 1 | | | | | | |
| | | | 7 1/2 | 4' 7 1/2 | 3 | | | | | | |

and size of Feed pumps

2 - 17" x 12" x 28" 1 - 10" x 9" x 24"

and size of Bilge pumps

1 - 7" x 8" x 18" 1 Emergency 5 1/2" Ballast 10 1/2" x 12" x 24" G.S. 10" x 8" x 18" 2 Sanitary 7" x 8" x 18"

and size of Bilge suction in Engine Room

5" x 3" 6" x 2 1/2" copperdam suction 1" x 6" x 1" direct suction 2" x 4" hose suction

In Holds, &c. 12" x 3" 3" x 3" in tunnels 1" x 2" copperdam suction in tunnel

1 - 2 1/2" in dust keel

of Bilge Injections

2

sizes 1 1/4"

Connected to condenser, or to circulating pump Pump

Is a separate Donkey Suction fitted in Engine Room & size Yes - 4 1/2"

all the bilge suction pipes fitted with roses No. Kuddow fitted

Are the in in Engine room always accessible Yes

all connections with the sea direct on the skin of the ship Come on sea chest

Are they Valves or Cocks Valves & Cocks

they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes

Are the Discharge Pipes above or below the deep water line Above & below

they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes

Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes

all pipes are carried through the bunkers Refrigerator discharge pipe

How are they protected Yes

all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes

the Screw Shaft Tunnel watertight Yes

Is it fitted with a watertight door Yes

worked from Upper deck

BOILERS, &c.

(Letter for record 2) Manufacturers of Steel Plates Rich Knapp, A.S. Stays & Rivets Co., Ltd. & Earl of Dudley R.O. Works.

al Heating Surface of Boilers 30600 sq. ft.

Forced Draft fitted Yes

No. and Description of Boilers 3 DB & 2 SB 3 DB & 2 SB

Working Pressure

200 lb

Tested by hydraulic pressure to 350 lb

Date of test 2/10/26 2/10/26 19/10/26 Nos of Certificates 2285 2286 2287

each boiler be worked separately Yes

Area of fire grate in each boiler DB 120 sq. ft. SB 70 sq. ft.

No. and Description of Safety Valves to 2285 2286 2287

boiler Spring loaded DB 3, SB 2

Area of each valve DB 5 1/2 sq. in. SB 7 1/2 sq. in.

Pressure to which they are adjusted 200 lb

Are they fitted with easing gear Yes

allest distance between boilers or uptakes and bunkers or woodwork 2' 9"

Mean dia. of boilers 17' 6"

Length 222' 12 1/4" Material of shell plates Steel

ickness 1 3/32

Range of tensile strength 29/33 tons

Are the shell plates welded or flanged No

Descrip. of riveting: cir. seams TRL & DEL

seams T.R. trouble traps

Diameter of rivet holes in long. seams 1 1/4"

Pitch of rivets 10 1/2"

Gap of plates or width of butt straps 23 1/2"

centages of strength of longitudinal joint

92.18

Working pressure of shell by rules 207.9 lb

Size of manhole in shell 22" x 18"

of compensating ring 29 1/2" x 35 1/2" x 1 1/2"

No. and Description of Furnaces in each Boiler 8' 4" corrugated Material Steel Outside diameter 3' 10 1/2"

gth of plain part

top

Thickness of plates

5 1/2"

Description of longitudinal joint Weld

No. of strengthening rings None

Working pressure of furnace by the rules 210 lb

Combustion chamber plates: Material Steel Thickness: Sides DB 5 1/2" Back 1 1/2" Top DB 5 1/2" Bottom 1 3/4"

ch of stays to ditto: Sides DB 9 1/2" x 9 1/2" Back DB 9 1/2" x 9 1/2" Top DB 9 1/2" x 9 1/2" Bottom DB 9 1/2" x 9 1/2"

If stays are fitted with nuts or riveted heads Yes

Working pressure by rules 204 lb

Material of stays Iron

Diameter of smallest part 1 1/4"

Area supported by each stay 74' 37 1/2 sq. in.

Working pressure by rules 204 lb End plates in steam space

Material Steel Thickness 1 3/32

Pitch of stays 22 1/2" x 17 1/2"

How are stays secured Double nuts

Working pressure by rules 208 lb Material of stays Steel

meter DB 3 1/2"

Area supported by each stay 393' 75 sq. in.

Working pressure by rules 204 lb Material of Front plates at bottom Steel

ickness 1"

Material of Lower back plate Steel

Thickness 2 3/32"

Greatest pitch of stays 14" x 9"

Working pressure of plate by rules 210 lb

meter of tubes 2 1/2" int.

Pitch of tube DB 3 1/2" x 3 1/2"

Material of tube plates Steel

Thickness: Front 1" Back 2 3/32"

Mean pitch of stays DB 9 1/2"

ch across wide water spaces DB 2 - 11 1/2" x 2"

Working pressures by rules 210 lb

Girders to Chamber tops: Material Steel

Depth and

ickness of girder at centre DB 2 - 9 1/2" x 2"

Length as per rule DB 2' 10 1/2"

Distance apart 8 3/4"

Number and pitch of stays in each DB 6 - 9"

DB 3 - 8 1/2"

Working pressure by rules DB 201 lb

Steam dome: description of joint to shell None

% of strength of joint Yes

ickness of shell plates 5/8

Material Steel

Description of longitudinal joint Yes

Diameter of rivet holes Yes

Pitch of rivets Yes

Working pressure of shell by rules Yes

Crown plates: Thickness Yes

How stayed Yes

Yes



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SUPERHEATER. Type *1* Date of Approval of Plan *1925* Tested by Hydraulic Pressure to *150 lb*
Date of Test *1925* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler
Diameter of Safety Valve *1 1/2* Pressure to which each is adjusted *150 lb* Is Easing Gear fitted *Yes*

IS A DONKEY BOILER FITTED? *Yes* If so, is a report now forwarded? *Yes*

SPARE GEAR. State the articles supplied:—

In excess of Rule See list forwarded herewith.

The foregoing is a correct description,
Gammell Lloyd and Company Limited

Manufacturer.

LOCAL SECRETARY

Dates of Survey while building
During progress of work in shops — *1925 Dec 29, 1926 Jan 7, 8, 11, 13, 17, 20, 21, 25, 26, 29, Feb 2, 9, 10, 11, 12, 15, 11, 15, 22, 23, 24, Mar 3, 4, 5, 8, 9, 12, 15, 17, 18, 19, 23, 25, 29, Apr 7, 8, 12, 13, 14, 16, 20, 21, 27, 28, May 3, 6, 11, 19, 21, 26, 27, 28, 31, June 3, 5, 7, 8, 11, 12, 14, 15, 17, 18, 22, 24, 27, 29, July 1, 2, 5, 6, 7, 9, 13, 14, 19, 21, 22, 23, 26, 27, 29, Aug 9, 12, 17, 18, 20, 23, 24, 26, 30, 31, Sept 2, 3, 6, 9, 10, 13, 16, 20, 22, 27, 29, Oct 1, 4, 5, 7, 14, 19, 20, 22, 25, 26, 27, Nov 4, 8, 12, 15, 18, 19, 22, 25, 26, Dec 2, 3, 9, 12, 15, 30, 31.*
During erection on board vessel — *1927 Jan 4, 6, 12, 13, 14, 18, 19, 22, 24, 25, 26, 27, 29, Feb 1, 3, 5, 8, 9, 11, 12, 14, 15, 16, 17, 18, 22, 24, 25, 26, Mar 2, 7, 8, 10, 14, 16, 17, 19, 22, 25, 28, 29, 31, Apr 1, 5, 7, 26.*
Total No. of visits *May 2, 9, 12, 21, 29, 30.* *188.*

Is the approved plan of main boiler forwarded herewith

" " " donkey " " " *Yes*

Dates of Examination of principal parts—Casings *15/3/26 to 27/9/26* Rotors *15/3/26 to 27/9/26* Blading *11/4/26 to 27/9/26* Gearing *14/4/26 to 27/9/26*

Rotor shaft *29/1/26* Thrust shaft *29/1/26 to 14/7/26* Tunnel shafts *29/1/26 to 14/7/26* Screw shaft, *29/1/26 to 14/7/26* Propeller, *15/3/26 to 31/12/26*

Stern tubes *14/10/26 to 31/12/26* Steam pipes tested *14/2/27 to 28/3/27* Engine and boiler seatings *4/9/26 to 21/2/27* Engines holding down bolts *18/1/27*

Completion of pumping arrangements *29/3/27* Boilers fired *15/2/27* Engines tried under steam *20/6/27*

Main boiler safety valves adjusted *1/4/27* Thickness of adjusting washers *P.S.B. F¹³⁰ A¹³⁰ S.S.B. F¹³⁰ A¹³⁰ P.D.B. F¹³⁰ C¹³⁰ A¹³⁰ L.D.B. F¹³⁰ C¹³⁰ A¹³⁰ S.D.B. F¹³⁰ C¹³⁰ A¹³⁰*

Material and tensile strength of Rotor shaft *Steel - 34/38 ton* Identification Mark on Do. *1114, 1115, 1127, 1129, 1133, 1134*

Material and tensile strength of Pinion shaft *Steel 40/44 ton* Identification Mark on Do. *1114, 1115, 1127, 1129, 1133, 1134*

Material of Wheel shaft *Steel* Identification Mark on Do. *6365* Material of Thrust shaft *Steel* Identification Mark on Do. *6367*

Material of Tunnel shafts *Steel* Identification Marks on Do. *1464, 1470, 1471, 6363, 6364, 6367, 6373, 6375* Material of Screw shafts *Steel* Identification Marks on Do. *6361*

Material of Steam Pipes *Steel* Test pressure *600 lb*

Is an installation fitted for burning oil fuel *Yes* Is the flash point of the oil to be used over 150°F. *Yes*

Have the requirements of Section 49 of the Rules been complied with *Yes*

Is this machinery a duplicate of a previous case *Yes* If so, state name of vessel *Si Alamehi, Si Andalusia*

General Remarks (State quality of workmanship, opinions as to class, &c. *The Machinery of this vessel has been built under Special Survey in accordance with the Rules, the approved plans and the Secretary's letters (E) of 29/7/25, 5/8/25, 10/11/25, 19/11/25, 20/11/25, 12/1/26, 22/1/26, 11/2/26, 19/3/26, 29/3/26, 20/6/26, 18/7/26. The Materials and Workmanship are of good quality. When tried under full working conditions at sea the Machinery was found satisfactory in every respect and, in our opinion, is eligible for the notation S.L.M.C 5.27 to be recorded in the Register Book. Also, Fitted for oil fuel S.27, F.P. above 150°F.*

The amount of Entry Fee ... £ 6 : 0 :
Special ... £ 151 : 19 :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, *19*
When received, *25 6 19*

B. G. Bedford & J. S. Milton
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

LIVERPOOL - 3 JUNE 1927

Assigned

+ L.M.C. - 5.27.

Fitted for oil fuel S.27.

F.P. above 150°F.

E.L.

CERTIFICATE WHITTEN.



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