

## REPORT ON MACHINERY

No. 15674.

Date of writing Report

4<sup>th</sup> Nov 1919

When handed in at Local Office

5<sup>th</sup> Nov 1919

Port of Litch

Received at London Office

MON. NOV. 10. 1919

No. in Survey held at

Kirkcaldy

Date, First Survey

Dec 4<sup>th</sup> 1918

Last Survey

29<sup>th</sup> Oct 1919

Reg. Book.

on the

S.S. "Sunbank"

(Number of Visits)

34

Master

Built at

Burntisland

By whom built

Burntisland P.B. & L<sup>td</sup>

Tons

Gross

When built

1919

Engines made at

Kirkcaldy

By whom made

Messrs Douglas &amp; Grant

when made

1919

Boilers made at

Renfrew

By whom made

Messrs Babcock &amp; Wilcox

when made

1919

Registered Horse Power

Owners

Lun Shipping Co. Ltd

Port belonging to

London

Nom. Horse Power as per Section 28

513

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

Yes

## ENGINES, &amp;c.—Description of Engines

Triple Inverted

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders

25" 41" 68"

Length of Stroke

45"

Revs. per minute

80"

Dia. of Screw shaft

13.5"

Material of

S

Is the screw shaft fitted with a continuous liner the whole length of the stern tube

Yes

Is the after end of the liner made water tight

in the propeller boss

Yes

If the liner is in more than one length are the joints burned

Yes

If the liner does not fit tightly at the part

between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

No

If two

liners are fitted, is the shaft lapped or protected between the liners

Yes

Length of stern bush

60"

Dia. of Tunnel shaft

12.4"

Dia. of Crank shaft journals

13.25"

Dia. of Crank pin

13.25"

Size of Crank webs

45.5" x 24.5" x 5.5" / 16

Dia. of thru shaft under

collars

13.25"

Dia. of screw

16-0"

Pitch of Screw

16-3"

No. of Blades

4

State whether moveable

No

Total surface

80 sq

No. of Feed pumps

2 Halls

Diameter of ditto

10 x 7 x 2 1/2

Stroke

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps

2

Diameter of ditto

3"

Stroke

2 1/4"

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines

2

SIZES OF PUMPS

10.5" x 12.5" x 2 1/2

9.5" x 7" x 1 1/2

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room

Yes 3"

Cirkelida Two 3"

In Holds, &amp;c.

Two 3" at each hold

One 3" funnel well

No. of Bilge Injections

1

sizes

11"

Connected to condenser, or to circulating pump

Pump

Is a separate Donkey Suction fitted in Engine room &amp; size

Yes 3.5"

Are all the bilge suction pipes fitted with roses

Yes

Are the roses in Engine room always accessible

Yes

Are the sluices on Engine room bulkheads always accessible

None

Are all connections with the sea direct on the skin of the ship

Yes

Are they Valves or Cocks

No

Are 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

No

Are 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

What pipes are carried through the bunkers

None

How are they protected

Yes

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

Yes

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

Yes

Dates of examination of completion of fitting of Sea Connections

13-6-19

of Stern Tube

13-6-19

Screw shaft and Propeller

7-7-19

Is the Screw Shaft Tunnel watertight

Yes

Is it fitted with a watertight door

Yes

worked from

Upper platform of E R

## BOILERS, &amp;c.—(Letter for record)

Manufacturers of Steel

Total Heating Surface of Boilers

8289 sq

Is Forced Draft fitted

Yes

No. and Description of Boilers

3 Water Tube boilers

Working Pressure

180 lbs

Tested by hydraulic pressure to

260 lbs

Date of test

10-10-19

No. of Certificate

762

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

84.5

No. and Description of Safety Valves to

each boiler

2 direct spring

Area of each valve

9 sq

Pressure to which they are adjusted

180 lbs

Are they fitted with easing gear

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

bunkers

Mean dia. of boilers

Length

Material of shell plates

Thickness

Range of tensile strength

Are the shell plates welded or flanged

Descrip. of riveting: cir. seams

long. seams

Diameter of rivet holes in long. seams

Pitch of rivets

Lap of plates or width of butt straps

Per centages of strength of longitudinal joint

rivets

Working pressure of shell by rules

Size of manhole in shell

Size of compensating ring

No. and Description of Furnaces in each boiler

Material

Outside diameter

Length of plain part

top

Thickness of plates

crown

Description of longitudinal joint

No. of strengthening rings

Working pressure of furnace by the rules

bottom

Combustion chamber plates: Material

Thickness: Sides

Back

Top

Bottom

Pitch of stays to ditto: Sides

Back

Top

If stays are fitted with nuts or riveted heads

Working pressure by rules

Material of stays

Diameter at smallest part

Area supported by each stay

Working pressure by rules

End plates in steam space:

Material

Thickness

Pitch of stays

How are stays secured

Working pressure by rules

Material of stays

Diameter at smallest part

Area supported by each stay

Working pressure by rules

Material of Front plates at bottom

Thickness

Material of Lower back plate

Thickness

Greatest pitch of stays

Working pressure of plate by rules

Diameter of tubes

Pitch of tubes

Material of tube plates

Thickness: Front

Back

Mean pitch of stays

Pitch across wide water spaces

Working pressures by rules

Girders to Chamber tops: Material

Depth and

thickness of girder at centre

Length as per rule

Distance apart

Number and pitch of stays in each

Working pressure by rules

Superheater or Steam chest; how connected to boiler

Can the superheater be shut off and the boiler worked

separately

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet

holes

Pitch of rivets

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

If stiffened with rings

Distance between rings

Working pressure by rules

End plates: Thickness

How stayed

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. 14615 Description Vertical with horizontal fire tubes  
Made at Annan By whom made Messrs Lochrane & Co When made 1919 Where fixed Upper deck  
Working pressure 100 lbs tested by hydraulic pressure to Date of test No. of Certificate Fire grate area 41 sq ft Description of Safety Valves direct spring No. of Safety Valves 2 Area of each 9 sq in Pressure to which they are adjusted 100 lbs Date of adjustment 24-10-19  
If fitted with easing gear Yes If steam from main boilers can enter the donkey boiler No Dia. of donkey boiler Length  
Material of shell plates Thickness Range of tensile strength Descrip. of riveting long. seams  
Dia. of rivet holes Whether punched or drilled Pitch of rivets Lap of plating Per centage of strength of joint Rivets  
Working pressure of shell by rules Thickness of shell crown plates Radius of do. No. of stays to do. Dia. of stays  
Diameter of furnace Top Bottom Length of furnace Thickness of furnace plates Description of joint  
Working pressure of furnace by rules Thickness of furnace crown plates Radius of do. Stayed by  
Diameter of uptake Thickness of uptake plates Thickness of water tubes Dates of survey

SPARE GEAR. State the articles supplied:— Two connecting rod top end bolts nuts. Two connecting rod top end bolts nuts. Two main bearing bolts nuts. One set of coupling bolts nuts. One set of fuel & bilge pump valves. A quantity of assorted bolts nuts. Iron of various sizes

For DOUGLAS & GRANT, Ltd.

The foregoing is a correct description,

Manufacturer.

James S. Anderson Director.

Dates of Survey while building During progress of work in shops -- Dec. 4, 1918 Jan 11, 12 Feb 12, March 4, 11, 28 April 4, 15, 25 May 2, 6, 13, 23, 27, June 3, 6, 10, 13, 14, 27, July 7, 14, 29, Aug 4, Sept 5, 12, 23 Oct 4, 10, 20, 24, 27, 29  
During erection on board vessel --  
Total No. of visits 34

Is the approved plan of main boiler forwarded herewith No

Dates of Examination of principal parts—Cylinders 6-6-19 Slides 14-6-19 " " donkey " 17-6-19 Pistons 13-6-19 Rods 13-5-19  
Connecting rods 28-3-19 Crank shaft 4-4-19 Thrust shaft 10-6-19 Tunnel shafts 4-6-19 Screw shaft 5-6-19 Propeller 13-6-19  
Stern tube 27-5-19 Steam pipes tested 20-10-19 Engine and boiler seatings 27-10-19 Engines holding down bolts 29-10-19  
Completion of pumping arrangements 27-10-19 Boilers fixed 24-10-19 Engines tried under steam 29-10-19  
Main boiler safety valves adjusted 24-10-19 Thickness of adjusting washers 3 P 1/2 S 1/2 L P 1/2 S 1/2 P P 1/2 S 1/2 D B 1/2 P 1/2  
Material of Crank shaft 8 Identification Mark on Do. 4896 Material of Thrust shaft S Identification Mark on Do. 2281  
Material of Tunnel shafts S Identification Marks on Do. 2261 Material of Screw shafts S Identification Marks on Do. 2281  
Material of Steam Pipes Lap welded steel Test pressure 540 lbs

General Remarks (State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel has been built under special survey. The materials & workmanship are good, in my opinion the vessel is eligible for record of L.M.C. 10-19. Elect light  
After the water tube boilers were assembled on board they were tested to twice the working pressure found high, satisfactory.  
The machinery has been efficiently fitted on board

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 10. 19. F.D. 3 Water Tube Boiler Subject to the Water Tube Boiler being surveyed annually.

The amount of Entry Fee .. £ 51. 14. 4  
Special .. £ 68. 19. 11  
Donkey Boiler Fee .. £  
Travelling Expenses (if any) £

When applied for.

When received.

Charles J. R. Williamson

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute

TUE NOV. 25. 1919

Assigned

+ L.M.C. 10. 19 F.D. subject



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Certificate (if required) to be sent to (The Surveyors are requested not to write on or below the space for Committee's Minute.)