

## REPORT ON MACHINERY

No. 73339

Received at London Office JUL. 22 1920

of writing Report

19

When handed in at Local Office

10

1920

Port of

Newcastle-on-Tyne

in Survey held at

Wallsend

Date, First Survey

25<sup>th</sup> April 1919

Last Survey

3<sup>rd</sup> June 1920

7. Book.

on the

S.S.

CITY OF BRISBANE

(Number of Visits)

Tons { Gross  
Net

ster

Built at Newcastle

By whom built

Swan Hunter &amp; Wigham Richardson Ltd.

When built

1920

ines made at

Newcastle

By whom made

Wallsend Shipway Engineering Co. Ltd.

when made

1920

lers made at

do.

By whom made

do.

when made

1920

istered Horse Power

Owners, Ellerman Line Ltd.

Port belonging to

ft Horse Power at Full Power

4400

Is Refrigerating Machinery fitted for cargo purposes

No.

Is Electric Light fitted

Yes

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

Double Reduction Geared Turbines

No. of Turbines

2

eters of Rotor Shaft Journals, H.P.

4 7/8"

L.P.

8"

Diameters of Pinion Shafts

1<sup>st</sup> 24.5"; L.P. 6"; 2<sup>nd</sup> 14"

eters of Journals

1<sup>st</sup> 26" 2<sup>nd</sup> 14"

Distances between Centres of Bearings

1<sup>st</sup> 30 3/4" 2<sup>nd</sup> 7 1/2"

Diameters of Pitch Circles

1<sup>st</sup> 48.0578" L.P. 14.8434" 2<sup>nd</sup> 19.3339"

eters of Wheel Shafts

1<sup>st</sup> 14" 2<sup>nd</sup> 17 1/4"

Distances between Centres of Bearings

1<sup>st</sup> 75 1/2" 2<sup>nd</sup> 79"

Diameters of Pitch Circles of Wheels

1<sup>st</sup> 65.009" 2<sup>nd</sup> 115.6389"

eters of Faces

1<sup>st</sup> 17" 2<sup>nd</sup> 34 1/2"

Diameter of Thrust Shaft under Collars

17 1/4"

Diameter of Tunnel Shaft

as per rule 15.94"

of Screw Shafts

1

Diameter of same

as per rule 17.37"

as fitted 18 1/4"

Diameter of Propeller

20'-6"

Pitch of Propeller

18'-6"

of Blades

4

State whether Moveable

Yes

Total Surface

145 sq ft

Diameters of Rotor

H.P. 22 1/2"

L.P. 14 1/2"

Astern 12 1/2"

Propeller

76"

tness at Bottom of Groove, H.P.

Solid

L.P.

Solid

Astern

Solid

Revs. per Minute at Full Power, Turbine

4436 1/2 L.P. 1993

Propeller

76"

## PARTICULARS 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.
EXPANSION	1 3/8" + 1 1/8"	25 5/8" x 26 3/8"	2	1 1/2" 2 1/16"	51 7/16"	1			
"	1 1/2"	26 1/2"	1	2 1/2" 3 1/4"	52 1/8" 52"	1	1 1/8" 2 1/4"	31 1/8" 32" 32 1/2"	3
"	1 3/8"	27 5/8"	1	3 1/2" 4 1/4"	53 7/8" 54 1/2"	1			
"	1 1/2"	28 3/4"	1	4 1/2" 5 1/4"	56" 56 1/2"	1			
"	1 3/8"	29 3/4"	1	5 1/2" 6 1/4"	57 1/2" 58 1/4"	1	1 1/8" 2 1/4" 2 3/4" 2 7/8"	59 1/2" 59 1/2" 59 1/2" 59 1/2"	3
"	1 1/2"	30 1/2"	1	6 1/2" 7 1/4"	59 3/8" 60 1/4"	1	2 3/4" 3 1/4" 4 1/4" 4 1/2"	60 1/2" 60 1/2" 60 1/2" 60 1/2"	2
"	1 3/8"	30 3/4"	1	7 1/2" 8 1/4"	66 1/2" 66 1/2"	1			
"	2 3/8"	30 5/8"	1	8 1/2" 9 1/4"	66 1/2" 66 1/2"	1			
"	2 1/2"	30 3/8"	1	10 1/2" 10 3/4"	66 1/2" 66 1/2"	1			
"	2 3/8"	30 1/2"	1	12 1/2" 10 3/8"	66 1/2" 66 1/2"	1			

and size of Feed pumps

Two

12" x 9" x 24"

and size of Bilge pumps

Two

6 1/2" x 15"

(Bilge &amp; Ballast) 10" x 11" x 10"

and size of Bilge suction in Engine Room

Four - 3 1/2"

and one

2 1/2" Special Oil Bilge in E.R.

In Holds, &amp;c. No. 1 - 2-3 1/2"; No. 2 - 2-3 1/2"; No. 3 - 2-3 1/2"; Deep Tank 2-3 1/2"

No. 2-3 1/2"; No. 5 - 2-3 1/2" Tunnel Well 1-3"

of Bilge Injections

1

sizes

1/2"

Connected to condenser, to circulating pump

Yes

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

Yes 3 1/2"

all the bilge suction pipes fitted with roses

Yes

Are the roses in Engine room always accessible

Yes

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

Yes

Are they Valves or Cocks

Both

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

Both

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

t pipes are carried through the bunkers

How are they protected

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

Screw Shaft Tunnel watertight

Yes

Is it fitted with a watertight door

Yes

worked from

Top platform

LERS, &amp;c.—(Letter for record

6)

Manufacturers of Steel

John Spencer &amp; Son Ltd.

al Heating Surface of Boilers

Total 10718 = 9036 + 1682

Is Forced Draft fitted

Yes

No. and Description of Boilers

3 S.B. &amp; 1 Aux S.B. and 1 Aux S.E. Hull

Working Pressure

225 lbs

Tested by hydraulic pressure to

394 lbs

Date of test

23.12.19

No. of Certificate

9343

each boiler be worked separately

Yes

Area of fire grate in each boiler

76 sq ft

No. and Description of Safety Valves to

boiler

Two Spring loaded

Area of each valve

11.04 sq ft

Pressure to which they are adjusted

230 lb

Are they fitted with easing gear

Yes

Greatest distance between boiler or uptakes and bunkers or woodwork

8"

Mean dia. of boilers

16'-1 7/8"

Length

12'-7"

Material of shell plates

Steel

Thickness

1 9/16"

Range of tensile strength

30734 lb

Are the shell plates welded or flanged

No.

Descrip. of riveting: cir. seams

A.R. Lap.

seams

Y.R. S.B.

Diameter of rivet holes in long. seams

1 1/2"

Pitch of rivets

10 3/4"

Lap of plates or width of butt straps

23 3/8"

centages of strength of longitudinal joint

plates - 85.4

rivets - 85.2

Working pressure of shell by rules

225

Size of manhole in shell

16" x 12"

of compensating ring

No nails

No. and Description of Furnaces in each Boiler

4 - Deighton's

Material

Steel

Outside diameter

45 1/8"

th of plain part

top

bottom

Thickness of plates

crown

bottom

Description of longitudinal joint

welded

No. of strengthening rings

1

Working pressure of furnace by the rules

237

Combustion chamber plates: Material

Steel

Thickness: Sides

1/16"

Back

1/16"

Top

3/32"

h of stays to ditto: Sides

8 1/4" x 8 1/4"

Back

8 1/8" x 8"

Top

7 1/16" x 8 3/4"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

225

Material of stays

Steel

Diameter at smallest part

2.03 0"

Area supported by each stay

72.18 0"

Working pressure by rules

257

End plates in steam space

Material of stays

Steel

Thickness

1 1/4"

Pitch of stays

20" x 15 1/2"

How are stays secured

S.N.

Working pressure by rules

225

Material of stays

Steel

Material at smallest part

7.24 0"

Area supported by each stay

310 0"

Working pressure by rules

242

Material of Front plates at bottom

Steel

Thickness

1"

Material of Lower back plate

Steel

Thickness

1 1/16"

Greatest pitch of stays

14 1/8"

Working pressure of plate by rules

225

Material of tube plates

Steel

Diameter of tubes

2 3/4"

Pitch of tubes

3 3/8" x 3 3/4"

Material of tube plates

Steel

Thickness: Front

1" x 1 1/2"

Back



SUPERHEATER. Type Schmidt Date of Approval of Plan ✓ Tested by Hydraulic Pressure to 450  
Date of Test 5-3-20 Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler Yes  
Diameter of Safety Valve 1 1/2" Pressure to which each is adjusted 230 lbs Is Easing Gear fitted Yes

~~AUXILIARY~~  
IS A ~~DONKEY~~ BOILER FITTED? Yes

If so, is a report now forwarded? Yes

SPARE GEAR. State the articles supplied:— 2 studs + nuts for each size of rotor bearing. 2 studs + nuts for each size of gear wheel + pin  
a set of coupling bolts + nuts. 1/20" of total number of bolts, studs + nuts for each gear case joint + each turbine casing joint. 27  
for oil circulating system. a set of bearing bushes for each size of wheel shaft, pinion shaft + rotor shaft - 1/2 set of packing  
springs for rotor glands. Two shoes for main Thrust Block. A set of mitchell type pads for each turbine adjusting block.  
of adjusting block liners of different thicknesses. a set of feed and blow pump valves. A set of valves for lubricating pump.  
A bucket + rod for lubricating pump. One escape valve spring of each size. A quantity of assorted bolts, nuts + washers, 2 Cas  
propeller blades. 1 H.P. pinion shaft. 1 L.P. pinion shaft. 2 Check valve lids, 6 Bricks/lids, 2 Safety valve springs, a piston + rod for Con

The foregoing is a correct description,

Manufacturer.

J. C. Henderson

Dates of Survey while building { During progress of work in shops - Apr 25 May 1-2-12-14-16-19-21-27-29 June 4-7-8-10-11-14-18-22-29 Aug 6-11-12-19-21-27-29 Sep 3-5-9-12-15-18  
During erection on board vessel - Oct 1-7-9-12-14-16-21-22-23-24-29 Nov 3-4-7-11-13-14-17-18-19-24-26-28 Dec 2-9-16-17-19-23 Jan 6-9-12-15-16-19-22-27  
Total No. of visits 87

Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts—Casings 14-10-19 Rotors 5-9-19 Blading 19-9-19 Gearing 3-11-19

Rotor shaft 5-9-19 Thrust shaft 29-5-19 Tunnel shafts 29-5-19 Screw shaft 29-5-19 Propeller 21-10-19

Stern tube 9-1-20 Steam pipes tested 26-5-20 Engine and boiler seatings 3-5-20 Engines holding down bolts 12-5-20

Completion of pumping arrangements 15-6-20 Boilers fixed 12-5-20 Engines tried under steam 18-6-20

Main boiler safety valves adjusted 15-6-20 Thickness of adjusting washers Pat Boiler F 7/8 8 7/16 Centre F 7/16 9 3/8 Star Bk. F 7/16 9 1/4

Material and tensile strength of Rotor shaft Semeni Steel 36/38.6 T Identification Mark on Do. T.F. 9.19

Material and tensile strength of Pinion shaft Nickel Steel 44.4/49.8 T Identification Mark on Do. T.F. 11.19

Material of Wheel shaft Nickel Steel Identification Mark on Do. T.F. 8.18 Material of Thrust shaft Steel Identification Mark on Do. T.F. 5.1

Material of Tunnel shafts Steel Identification Marks on Do. T.F. 5.19 Material of Screw shafts Steel Identification Marks on Do. T.F. 5.1

Material of Steam Pipes Iron cap welded Test pressure 675 lbs

Is an installation fitted for burning oil fuel Not complete 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 So far as now fitted

Is this machinery a duplicate of a previous case No If so, state name of vessel ✓

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

The machinery and Boilers of this vessel have been built under special survey. The mater and workmanship are sound and good. They have been efficiently installed and tried under steam. The Boiler safety valves were adjusted under steam to the working pressure. The vessel is now eligible, in our opinion, to have the notation + L.M.C. 6.20

An installation for the burning of oil fuel has been partly installed but the vessel left place for burning coal. The oil burning pumping arrangement has been fitted with a view to future use.

It is submitted that this vessel is eligible for THE RECORD + LMC 6.20 F.D.  
2 Steam Turbines geared to 1 Screw Shaft.

The amount of Entry Fee ... £ 3 : -  
Special ... £ 64 : 4 -  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ : :  
When applied for, 21-7-1920  
When received, 24/8/20

R. C. Anner  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. JUL 30 1920

Assigned

+ R. M.C. 6.20 F.D.

CERTIFICATE



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