

REPORT ON MACHINERY.

Mbr. No. 2996
Hul - 16430

Port of MIDDLESBROUGH-ON-TEES.

Received at London Office
Date, first Survey 30th June 1904 Last Survey Nov. 10th 1904
(Number of Visits)

No. in Survey held at

Reg. Book.

563 on the

Middlesbrough
S.S. "Grace"

Master Joseph Lea

Built at

Goole

By whom built

Goole S. R. Co. Ltd.

Tons

Gross 354

Net 139

When built

1904

Engines made at

Middlesbrough

By whom made

Richardsons Westgarth & Co

when made

1904

Boilers made at

ditto

By whom made

ditto

when made

1904

Registered Horse Power

Owners

A. H. Kemp.

Port belonging to

London

Nom. Horse Power as per Section 28

85

Is Refrigerating Machinery fitted

no

Is Electric Light fitted

no

ENGINES, &c.—Description of Engines

Compound

No. of Cylinders

2

No. of Cranks

2

Dia. of Cylinders

17" - 38"

Length of Stroke

27"

Revs. per minute

Dia. of Screw shaft

as per rule 8.02

Material of

Screw iron

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

✓

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 fitting If two liners are fitted, is the shaft lapped or protected between the liners

Dia. of Tunnel shaft

as per rule 7.33

Dia. of Crank shaft journals

as per rule 7.67

Dia. of Crank pin

8"

Size of Crank webs

5 1/2" x 13 1/4"

Dia. of thrust shaft under

collars

8"

Dia. of screw

9'-6"

Pitch of screw

9'-6"

No. of blades

4

State whether moveable

no

Total surface

30 sq ft

No. of Feed pumps

1

Diameter of ditto

3"

Stroke

13"

Can one be overhauled while the other is at work

✓

No. of Bilge pumps

1

Diameter of ditto

3"

Stroke

13"

Can one be overhauled while the other is at work

✓

No. of Donkey Engines

2 duplex

Sizes of Pumps

4 1/2" x 2 1/4" x 4"

Ballast

5 1/2" x 4 1/4" x 5"

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

In Engine Room

Two of 2" one of 2 1/2"

In Holds, &c.

Two of 2 1/2"

No. of bilge injections

1

sizes

3"

Connected to condenser, or to circulating pump

C.P.

Is a separate donkey suction fitted in Engine room & size

yes 2 1/2"

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

both

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

above

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

Suction from hold port side

How are they protected

wood casing

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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock

Now new

Is the screw shaft tunnel watertight

none

Is it fitted with a watertight door

✓

worked from

✓

BOILERS, &c.—

(Letter for record (7))

Total Heating Surface of Boilers

1577 ft²

Is forced draft fitted

no

No. and Description of Boilers

One single ended

Working Pressure

130 lb

Tested by hydraulic pressure to

260 lb

Date of test

5-10-04

Can each boiler be worked separately

✓

Area of fire grate in each boiler

58 ft²

No. and Description of safety valves to

each boiler

Two direct spring

Area of each valve

11.04"

Pressure to which they are adjusted

135 lbs

Are they fitted with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

11 1/2"

Mean dia. of boilers

13'-6"

Length

10'-6"

Material of shell plates

Steel

Thickness

27/32

Range of tensile strength

28/32

Are they welded or flanged

no

Descrip. of riveting: cir. seams

D.R. Lap

long. seams

D. Butt St.

Diameter of rivet holes in long. seams

1 1/16"

Pitch of rivets

6 1/4" row 3 1/2" 2 row

Lap of plates or width of butt straps

14 1/2" x 13 1/8"

Per centages of strength of longitudinal joint

rivets 97.5

plate 85

Working pressure of shell by rules

131.4

Size of manhole in shell

end 16" x 12"

Size of compensating ring

flanged

No. and Description of Furnaces in each boiler

3 plain

Material

Steel

Outside diameter

3'-6 1/4"

Length of plain part

top 7'-0"

Thickness of plates

crown 1 1/16"

Description of longitudinal joint

welded

No. of strengthening rings

✓

Working pressure of furnace by the rules

143 lbs

Combustion chamber plates: Material

Steel

Thickness: Sides

1 1/16"

Back

2 1/16"

Top

5/16"

Pitch of stays to ditto: Sides

10" x 10"

Back

8 1/2" x 10"

Top

9 1/2" x 12"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

141

Material of stays

S

Area

Diameter at smallest part

1.48"

Area supported by each stay

100"

Working pressure by rules

145

End plates in steam space

Material

Steel

Thickness

3/32"

Pitch of stays

17 1/2" x 18 1/2"

How are stays secured

D.R. x W.

Working pressure by rules

137

Material of Front plates at bottom

Steel

Thickness

7/8"

Material of Lower back plate

Steel

Thickness

3/32"

Greatest pitch of stays

15 3/8" x 8 1/2"

Diameter of tubes

3 1/4"

Pitch of tubes

4 1/2" x 4 1/2"

Material of tube plates

Steel

Thickness: Front

7/8"

Back

2 3/32"

Pitch across wide water spaces

14 1/4"

Working pressures by rules

135

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

10 1/2" W.

Number and pitch of Stays in each

Working pressure by rules

158

Superheater or Steam chest; how connected to boiler

none

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

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

✓

✓

✓

✓

✓

5800-965M

DONKEY BOILER—

No. *One* Description *Vertical*

Made at *Goole*

By whom made *Webster & Bickerton*

When made *1904* Where fixed *Stokehole*

Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *1342* Fire grate area *134 sq. ft.* Description of safety valves *Direct spring*

No. of safety valves *1* Area of each *7"* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *5'-0"* Length *6'-6"* Material of shell plates *Steel* Thickness *3/16"* Range of tensile strength *27-32* Descrip. of riveting long. seams *S.R. Lap*

Lap of plating *4 5/8"* Per centage of strength of joint *75* Rivets *75* Dia. of rivet holes *7/8"* Whether punched or drilled *Drilled* Pitch of rivets *3 1/2"*

Thicknes of shell crown plates *1/16"* Radius of do. *Flat* No. of Stays to do. *8*

Thicknes of furnace plates *1/2"* Description of joint *S.R. Lap* Thicknes of furnace crown plates *9/16"* Stayed by *8 Stays 1 3/4" dia*

Working pressure of furnace by rules *120 lbs* Diameter of uptake *12"* Thicknes of uptake plates *1/2"* Thicknes of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *2 Bolts & nuts for piston rods, connecting rods & main bearings 1 set coupling bolts & nuts. 3 Piston bolts & set air and circulating pump valves 1 set feed & bilge pump valves 2 feed check valves 2 donkey pump valves. 1 set H.P. piston rings & L.P. piston springs Bolts & nuts assorted.*

The foregoing is a correct description,

For RICHARDSONS, WESTGARTH & Co., Ltd.

H. Jackson

Manufacturer.

Dates of Survey while building { During progress of work in shops - *1904 June 30 July 7.8.12.14.18.19.20.28 Aug 11.12.22.23.29 Sep 5.7.8.14.17.21.22.28 Oct 3.4.5.11.27.28*
During erection on board vessel - *29.31. Hull. Sep.30. Oct.4. Nov.7. (D.B.) July 25 Aug 25 Sep 30 Oct 4*
Total No. of visits *(Mdb) 30 (Hull) 8 - total 38*

Is the approved plan of main boiler forwarded herewith *Yes*

General Remarks (State quality of workmanship, opinions as to class, &c. *This vessels machinery is placed aft. It has been built under special survey. The materials and workmanship are good. After fitting and securing on board it has been tried under steam satisfactorily and is now in good and safe working condition, and eligible in our opinion to have the record* **LMC 11.04.**

It is submitted that this vessel is eligible for THE RECORD **LMC 11.04**

RL *ms* *23.11.04*

Certificate (if required) to be sent to Mbro

The amount of Entry Fee. £ *1* : . . . When applied for, *13.15.10 mdr. 2/11 2.17.10 mdr. 2/11*
Special . . . £ *12* : *15* : . . . *22.11.04*
Donkey Boiler Fee . . . £ *2* : *2* : . . . When received, *22.11.04*
Travelling Expenses (if any) £ *-* : *15* : *10* . . . *22.11.04*

R.D. Shilston *J. Kerr*
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI. 25 NOV 1904

MACHINERY CERTIFICATE
WRITTEN.

Assigned

+ LMC 11.04



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Foundation