

REPORT ON MACHINERY.

No. 6391.

Port of MIDDLESBROUGH-ON-TEES

Received at London Office

JUL 4 AUG 1910
THU 18 AUG 1910No. in Survey held at
Reg. Book.

Stockton-on-Tees

Date, first Survey

5th April

Last Survey

27th July 1910

on the

Steel Screw Steamer "BOYNE"

(S.S.N. 473)

(Number of Volls)

34

August 7th 1910

Master

Dale

Built at

Sunderland

By whom built

J. L. Thompson & Sons Ltd

Tons

Gross

44231

Net

2771

When built

1910

Engines made at

Stockton

By whom made

Thos Blair & Co Ltd (N. 1678)

when made

1910

Boilers made at

Stockton

By whom made

Thos Blair & Co Ltd

when made

1910

Registered Horse Power

Owners

Mercantile S.S. Co.

Port belonging to

London

Nom. Horse Power as per Section 28

374

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

no

ENGINES, &c.—Description of Engines

Triple Expansion

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders

25-42-68

Length of Stroke

48

Revs. per minute

58

Dia. of Screw shaft

as per rule 14.27

Material of

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

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

yes

If two

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

yes

Length of stern bush

5'-4"

Dia. of Tunnel shaft

as per rule 12.74

as fitted 13.5"

Dia. of Crank shaft journals

as per rule 13.38

as fitted 14

Dia. of Crank pin

14.5"

Size of Crank webs

27.5 x 9.5"

Dia. of thrust shaft under

collars

14.5"

Dia. of screw

17'-6"

Pitch of Screw

17'-6"

No. of Blades

4

State whether moveable

no

Total surface

94 sq ft

No. of Feed pumps

2

Diameter of ditto

3.5"

Stroke

34

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

2

Diameter of ditto

4.5"

Stroke

34

Can one be overhauled while the other is at work

yes

No. of Donkey Engines

2

Sizes of Pumps

Ballast 9 x 10 x 10
Feed 7 x 4.5 x 8

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

In Engine Room 3 @ 9.5"

In Holds, &c. 2 @ 9.5" in each hold

No. of Bilge Injections

1

sizes

6.5"

Connected to condenser or to circulating pump

yes

Is a separate Donkey Suction fitted in Engine room & size

yes-4"

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

yes

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

four holds

How are they protected

wood ceiling

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

7-6-10

of Stern Tube

16-6-10

Screw shaft and Propeller

20.7.10

Is the Screw Shaft Tunnel watertight

yes

Is it fitted with a watertight door

yes

worked from top platform

yes

BOILERS, &c.—(Letter for record (S))

Manufacturers of Steel

Messrs J. Spencer & Sons

Total Heating Surface of Boilers

6129

Is Forced Draft fitted

no

No. and Description of Boilers

2 single ended

Working Pressure

180

Tested by hydraulic pressure to

360 lbs

Date of test

15.6.10

No. of Certificate

4446

Can each boiler be worked separately

yes

Area of fire grate in each boiler

67

No. and Description of Safety Valves to

each boiler

2 direct spring

Area of each valve

8.29

Pressure to which they are adjusted

185

Are they fitted with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

2'-3"

dia. of boilers

16'-9"

Length

11'-6"

Material of shell plates

steel

Thickness

1 1/2"

Range of tensile strength

28-32

Are the shell plates welded or flanged

no

Descrip. of riveting: cir. seams

2 Riv lap

long. seams

2 Riv-3 Riv

Diameter of rivet holes in long. seams

1 3/8"

Pitch of rivets

9 1/4"

Emp. of plates or width of butt straps

20 5/8 x 1 5/8"

Per centages of strength of longitudinal joint

rivets 89

plate 85.15

Working pressure of shell by rules

183 lbs

Size of manhole in shell

16 x 12"

Size of compensating ring

7 3/4 x 1 1/2"

No. and Description of Furnaces in each boiler

3 Morrison

Material

steel

Outside diameter

48.4"

Length of plain part

top

bottom

Thickness of plates

crown 3 3/4"

bottom 3 1/4"

Description of longitudinal joint

welded

No. of strengthening rings

yes

Working pressure of furnace by the rules

189

Combustion chamber plates: Material

steel

Thickness: Sides

2 3/4"

Back

1 1/2"

Top

2 3/4"

Bottom

7/8"

Pitch of stays to ditto: Sides

10 1/2 x 8 5/8"

Back

9 3/8 x 9 3/8"

Top

10 1/2 x 9 3/8"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules

181

Material of stays

steel

Diameter at smallest part

1.57

Area supported by each stay

90.23

Working pressure by rules

198

End plates in steam space:

Material

steel

Thickness

1 1/2"

Pitch of stays

22 1/2"

How are stays secured

nuts

Working pressure by rules

185

Material of stays

steel

Diameter at smallest part

3.29

Area supported by each stay

473

Working pressure by rules

186

Material of Front plates at bottom

steel

Thickness

1"

Material of Lower back plate

steel

Thickness

1 1/2"

Greatest pitch of stays

17 1/2"

Working pressure of plate by rules

200

Diameter of tubes

3 1/2"

Pitch of tubes

4 3/4 x 4 3/8"

Material of tube plates

steel

Thickness: Front

1 1/2"

Back

1 1/2"

Mean pitch of stays

9 5/8"

Pitch across wide water spaces

14 1/2"

Working pressures by rules

192

Girders to Chamber tops: Material

steel

Depth and

thickness of girder at centre

8 x 1 3/4"

Length as per rule

30"

Distance apart

10 1/2"

Number and pitch of stays in each

2 @ 9 1/4"

yes

Working pressure by rules

182

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

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

VERTICAL DONKEY BOILER— *Manufacturers of Steel See Indt Report No 6347.*

No. *one* Description *single ended multitubular*
 Made at *Stockton* By whom made *Riley Bros Ltd (Rls N° 4113)* When made *1910* Where fixed *upper deck in Rtd*
 Working pressure *160* tested by hydraulic pressure to *320* Date of test *20.6.10* No. of Certificate *4448* Fire grate area *29.4* Description of Safety
 Valves *direct spring* No. of Safety Valves *2* Area of each *3.98* Pressure to which they are adjusted _____ Date of adjustment _____
 If fitted with easing gear _____ 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 _____ Stayed by _____
 Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— *Two each of top end, bottom end and main bearing bolts and nuts; one set of coupling bolts and nuts; one set feed and bilge pump valves, assorted bolts and nuts; iron of various sizes; one H.P. piston valve; one set (Buckley's) piston rings for H.P. & M. one tail shaft; one air & one circulating pump rod & one feed pump plunger.*

The foregoing is a correct description,
 For **BLAIR & CO., LIMITED** Manufacturer.
Geo. Nettleship

Dates of Examination of principal parts—Cylinders *20.4.10* Slides *31.5.10* Covers *9.6.10* Pistons *1.6.10* Rods *25.5.10*
 Connecting rods *9.6.10* Crank shaft *2.7.10* Thrust shaft *6.6.10* Tunnel shafts *31.5.10* Screw shaft *2.7.10* Propeller *2.7.10*
 Stern tube *15.6.10* Steam pipes tested *23.7.10* Engine and boiler seatings *16.6.10* Engines holding down bolts *22.7.10*
 Completion of pumping arrangements *27.7.10* Boilers fixed *27.7.10* Engines tried under steam *27.7.10*
 Main boiler safety valves adjusted *27.7.10* Thickness of adjusting washers *Port Val 1/4" 3/8" 1/2" 3/4" 1"* Star Val *1/4" 3/8" 1/2" 3/4" 1"*
 Material of Crank shaft *Ing Steel* Identification Mark on Do. *6574* Material of Thrust shaft *Ing Steel* Identification Mark on Do. *7223*
 Material of Tunnel shafts *Ing Steel* Identification Marks on Do. *7223* Material of Screw shafts *iron* Identification Marks on Do. *6574*
 Material of Steam Pipes *solid drawn copper (7" x 3/16" & 5" x 1/4")* Test pressure *400 lbs.*

General Remarks (State quality of workmanship, opinions as to class, &c. *To complete the survey the watertight doors require to be fitted in the machinery space; the donkey boiler mounted and, secure in place and safety valves of same adjusted; and the fidley gratings and covers complete. It is stated this will be done at Sunderland. The Sunderland Surveyors have been advised.*

The machinery of this vessel has been built under special survey. The materials and workmanship are sound and good. The boilers and main steam pipes have been tested by hydraulic pressure and the engines & main boilers have been examined under steam at a wharf and all found satisfactory.

The machinery is now in a good and safe working condition and eligible in my opinion to have the notation of LMC—(with a date) when the survey has been completed.

The above recommendations complied with.
Vessel now eligible in our opinion for record + L.M.C. 8.10

It is submitted that
 this vessel is eligible for
 THE RECORD + LMC 8.10.

E. J. Stoddard
 10.8.10.

N.H.P. = 374
 The amount of Entry Fee... £ *3.0-0*
 Special... £ *38-14-0*
 Donkey Boiler Fee... £ *✓*
 Travelling Expenses (if any) £ *✓*
 Committee's Minute
 Assigned
 FRI. 19 AUG 1910
 + LMC 8.10

J.W.D.
 18/8/10
Wm Harrison
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping