

Rpt. 4.

REPORT ON MACHINERY.

No. 13625
MON. SEP. 22. 1913

Received at London Office

Date of writing Report 19th Sept 13 When handed in at Local Office

10

Port of Hamburg

No. in Survey held at
Reg. Book.

Kiel

Date, First Survey 16.7.1912

Last Survey 17.9.

1913

on the Steel S.S. "Mokican"

(Number of Visits 24)

Gross 5073
Net 3026
Tons

Master W. Jäger

Built at

Kiel

By whom built

Howaldtswerke

When built

1913

Engines made at

Kiel

By whom made

Howaldtswerke

when made

1913

Boilers made at

Kiel

By whom made

Howaldtswerke

when made

1913

Registered Horse Power 320

Owners Deutsche Handels Petroleum Ges Port belonging to Hamburg

Nom. Horse Power as per Section 28 320

Is Refrigerating Machinery fitted for cargo purposes

no

Is Electric Light fitted

yes

ENGINES, &c.—Description of Engines

Quad. Expansion

No. of Cylinders 4

No. of Cranks 4

Dia. of Cylinders

19 1/2, 28 1/2, 41 1/2, 57 1/2

Length of Stroke

4 1/8

Revs. per minute

80

Dia. of Screw shaft

as per rule 12 1/2

Material of

Steel

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

If two

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

Length of stern bush 49 1/2

Dia. of Tunnel shaft

as per rule 10 3/4

Dia. of Crank shaft journals

as per rule 11 1/2

Dia. of Crank pin

11 3/4

Size of Crank webs

7 1/2 x 10 1/2

Dia. of thrust shaft under

collars

11 5/8

Dia. of screw

15 1/2

Pitch of Screw

15 1/2

No. of Blades

4

State whether moveable

yes

Total surface

No. of Feed pumps

2

Diameter of ditto

4 1/2

Stroke

23 1/2

Can one be overhauled while the other is at work

yes

No. of Bilge pumps

2

Diameter of ditto

4 1/2

Stroke

23 1/2

Can one be overhauled while the other is at work

yes

No. of Donkey Engines

6

Sizes of Pumps See Specifications

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

In Engine Room 7 off 3 1/2, 1 off 2 from Bilge

In Holds, &c. 14 off 8 from Cargo tanks, 10 off 6 from

Summertank, 2 off 5 from Deep tank, 4 off 5 from Cofferdams, 1 off 5 from after Peak, 1 off 5 from Forepeak

No. of Bilge Injections

1 sizes 8 1/2

Connected to condenser, or to circulating pump

yes

Is a separate Donkey Suction fitted in Engine room & size

yes, 3 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

Cocks & Valves

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

none

How are they protected

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

10/7 13

of Stern Tube

10/7 13

Screw shaft and Propeller

10/7 13

Is the Screw Shaft Tunnel watertight

no

Is it fitted with a watertight door

worked from

worked from

BOILERS, &c.—(Letter for record S)

Manufacturers of Steel The Glasgow Iron & Steel Co. Ltd.

Total Heating Surface of Boilers

4512

Is Forced Draft fitted

yes

No. and Description of Boilers 2 single ended multitubular

Working Pressure

213 lbs.

Tested by hydraulic pressure to

426 lbs.

Date of test

23/6 + 4/7 13

No. of Certificate

215 + 216

Can each boiler be worked separately

yes

Area of fire grate in each boiler

50 sq. ft.

No. and Description of Safety Valves to

each boiler 2 Spring load.

Area of each valve

12 sq. in.

Pressure to which they are adjusted

213 lbs.

Are they fitted with easing gear

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

16 1/2

Mean dia. of boilers

14 1/4

Length

11 6 3/8

Material of shell plates

Steel

Thickness

3/4

Range of tensile strength

28-32 Tons

Are the shell plates welded or flanged

—

Descrip. of riveting: cir. seams

lap, dbl. riv.

long. seams

dbl. butt, full riv.

Diameter of rivet holes in long. seams

1 1/4

Pitch of rivets

18 1/2

Lap of plates or width of butt straps

27 1/2

Per centages of strength of longitudinal joint

rivets 117 1/8 %

plate 92 3/4 %

Working pressure of shell by rules

227 1/2 lbs.

Size of compensating ring

26 x 30 x 1 3/4

No. and Description of Furnaces in each boiler

3 horizontal

Material

Steel

Outside diameter

43 3/4

Length of plain part

top 6 1/2

bottom 4 1/2

Thickness of plates

crown 1 1/2

bottom 1 1/2

Description of longitudinal joint

welded

No. of strengthening rings

none

Working pressure of furnace by the rules

241 1/2 lbs.

Combustion chamber plates: Material

Steel

Thickness: Sides

68

Back

68

Top

68

Bottom

99

Pitch of stays to ditto: Sides

7 1/2 x 7 1/2

Back

7 1/2 x 7 1/2

Top

7 1/2 x 7 1/2

If stays are fitted with nuts or riveted heads

nuts & riv.

Leads

Working pressure by rules

290 1/2 lbs.

Material of stays

Steel

Diameter at smallest part

1 1/4

Area supported by each stay

59 sq. in.

Working pressure by rules

226 1/2 lbs.

End plates in steam space:

Material

Steel

Thickness

1 1/4

Pitch of stays

18 x 16 1/2

How are stays secured

nuts & riv.

Working pressure by rules

287 1/2 lbs.

Material of stays

Steel

Diameter at smallest part

3

Area supported by each stay

248 sq. in.

Working pressure by rules

293 1/2 lbs.

Material of Front plates at bottom

Thickness

1 1/2

Material of Lower back plate

Steel

Thickness

1 1/2

Greatest pitch of stays

19 1/2

Working pressure of plate by rules

296 1/2 lbs.

Diameter of tubes

2 1/2

Pitch of tubes

37 1/2 x 2 1/2

Material of tube plates

Steel

Thickness: Front

1 1/2

Back

1 1/2

Mean pitch of stays

7 1/2

Pitch across wide water spaces

13 1/2

Working pressures by rules

215 lbs.

Girders to Chamber tops: Material

Steel

Depth and

thickness of girder at centre

8 1/2 x 15 1/2

Length as per rule

31 1/2

Distance apart

7 1/2

Number and pitch of stays in each

3 - 7 1/2

Working pressure by rules

213 lbs.

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

—

—

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Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

—

—

—

VERTICAL DONKEY BOILER—Manufacturers of Steel

No. _____ Description _____
 Made at _____ By whom made _____ When made _____ Where fired _____
 Working pressure _____ tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Fire grate area _____ Description of Safety _____
 Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ Date of adjustment _____
 If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____ Dia. of donkey boiler _____ Length _____
 Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long. seams _____ Rivets _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ Plates _____
 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:— *1 1/2 crankshaft, 1 Propeller shaft, 2 Bronze Propeller blades, 1 set of piston rings each for 2 P. & L. P. & L. P. cylinders, 2 pump links one for each end, 1 air pump piston with bucket, 1 pump with shaft for circulating pump, 1 eccentric strap with bolts & nuts, 2 set of connecting rod top end and 1 set of bottom end brasses, 4 connecting rod top & 2 bottom end bolts with nuts, 2 main bearings bolts, 2 set of coupling bolts one of each size, 1/2 set of gunkering bolts for each cylinder, 1 set of valves for air pump, 1/2 set of valves with seats for feed and live pumps, 2 springs for safety valves of main & 1 spring for donkey boiler, several springs for escape valves of cylinders, 1/2 set of fire bars, 25 condenser tubes, with ferrules, 25 tubes for main keelson, a large quantity of spare articles for all auxiliary engines, nuts, studs, bolts, rivets, plate and bar iron assorted.*

The foregoing is a correct description,

HOWALDTSWERKE

Manufacturer.

Dates of Survey while building: During progress of work in shops -- 16/7, 24/11, 29/12 1912 11/1, 4/2, 10/3, 18/3, 1/4, 25/4, 7/5, 14/5, 23/5, 2/6, 9/6, 18/6, 23/6, 1/7 & 10/7
 During erection on board vessel -- 9/8, 20/8, 25/8 29/8, 11/9 & 17/9 1913.
 Total No. of visits 24

Is the approved plan of main boiler forwarded herewith *no, were sent previously*

Dates of Examination of principal parts—Cylinders 23.5 Slides 18.6 Covers 15.5 Pistons 10.7
 Connecting rods 10.7 Crank shaft 9.6 Thrust shaft 9.6 Tunnel shafts 10.3 Screw shaft 9.8 Propeller 10.7
 Stern tube 10.7 Steam pipes tested 11.9 Engine and boiler seatings 11.9 Engines holding down bolts 29.8
 Completion of pumping arrangements 11.9 Boilers fixed 11.9 Engines tried under steam 17.9
 Main boiler safety valves adjusted 17.9 Thickness of adjusting washers *Forw. 17/32 1/4 17/32, 2nd 5/8 1/4 17/32, 3rd 3/4 1/4 17/32*
 Material of Crank shaft *Steel* Identification Mark on Do. *291 294 J.K.* Material of Thrust shaft *Steel* Identification Mark on Do. *295 J.K.*
 Material of Tunnel shafts *Steel* Identification Marks on Do. *296 J.K.* Material of Screw shafts *Steel* Identification Marks on Do. *297 J.K.*
 Material of Steam Pipes *Steel* Test pressure 430 lbs

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

a) 1 Simplex double acting Weir's 6 1/4" diam. by 1 1/4" stroke for Feed purposes
b) 1 Duplex " " " 4 " " " 6 " " " Deck & General Service
c) 1 " " " 3 1/2 " " " 5 " " " Donkey Boiler Feed.
d) 2 " " " 3 1/2 " " " 5 " " " Oil Fuel arrangements
e) 1 " " " 5 3/4 " " " 6 " " " Foreship & Deck wash.
f) 1 " " " 8 1/2 " " " 10 " " " Ballast & Bilge service
g) 1 " " " 8 1/2 " " " 10 " " " Forew. Deep tank & Bilge
h) 2 " " " 11 " " " 18 " " " Oil Cargo & Ballast Service

Material and workmanship of these Engines & Boilers are of very best description, the outfit is ample. The tests of the Steel Boiler material, signed by the testing Surveyors are in my hands. The Forging certificates of shipping will be found attached. I attended to a satisfactory trial trip on the 17. Sept. 13, when the machinery gave full satisfaction. The Boilers and machinery of this Vessel having been constructed under Special Survey in accordance with the Society's Rules, I beg to recommend that they be classed, fitted for Liquor Fuel 9.13 LMC 9.13, be entered in Register Book and that a Certificate of classing be issued to this effect.

The amount of Entry Fee *£1 65* : When applied for, *16.9.13*
 Special *£7 20* : *16.9.13*
 Donkey Boiler Fee *£4 45* : When received, *10/10/13*
 Travelling Expenses (if any) *£1 20* : *10/10/13*
 Committee's Minute *TUE. SEP. 23. 1913*

Assigned

+ L.M.C. 9.13
Fitted for oil fuel 9.13
F.D. above 150.7

Lloyd's Register Foundation

Certificate (if required) to be sent to Lloyd's Register Office