

REPORT ON MACHINERY.

No. 3348

MON 8 MAY 1911

Date of writing Report 1st May 1911 When handed in at Local Office 10 Port of Copenhagen
No. in Survey held at Copenhagen Date, First Survey 16th October 1910 Last Survey 27th April 1911
Reg. Book. 8 in Splend on the Steamer "Libau" (Number of Visits 54)

Master C. Neumann Built at Copenhagen By whom built A. S. Højenhøns Flyddok og Skibsværft Tons Gross 1309
Engines made at Copenhagen By whom made A. S. Højenhøns Flyddok og Skibsværft Net 827
Boilers made at Copenhagen By whom made A. S. Højenhøns Flyddok og Skibsværft When built 1911
Registered Horse Power 138 Owners Russian East Asiatic Steamship Co when made 1911
Nom. Horse Power as per Section 28 138 Port belonging to Libau
Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Inverted triple expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 16 1/2" 27" 4 1/4" Length of Stroke 30" Revs. per minute 95 Dia. of Screw shaft as per rule 9 1/4" Material of screw shaft L.M. 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

Is 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 If two

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 3'-9"

Dia. of Tunnel shaft as per rule 8 1/2" Dia. of Crank shaft journals as per rule 8 1/8" Dia. of Crank pin 8 7/8" Size of Crank webs 3 1/2" x 16 1/2" Dia. of thrust shaft under collars 8 7/8" Dia. of screw 12'-0" Pitch of Screw 11'-9" No. of Blades 4 State whether moveable no Total surface 46 sq ft

No. of Feed pumps 2 Diameter of ditto 4" Stroke 7 1/2" Can one be overhauled while the other is at work yes
No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 14" Can one be overhauled while the other is at work yes

No. of Donkey Engines 3 Sizes of Pumps Ballast pump 6" x 8" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps
Engine Room 1 off 2 1/2", 3 off 2" In Holds, &c. After hold 2 off 2", Fore hold 2 off 2"

Tunnel 1 off 3 1/4", No. 1 tank 1 off 3 1/2", No. 2 tank 4 off 3 1/2", Eng. tank 2 off 3 1/2", No. 4 tank 1 off 4 1/2", A.P.T. 1 off 2 1/2"

No. of Bilge Injections 1 sizes 5" Connected to condenser, or to circulating pump, &c. 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

That 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 1st Feb. 10 of Stern Tube 1/2-10 Screw shaft and Propeller 3/2-10

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from upper deck

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Beardmore & Co. Ltd., Glasgow

Total Heating Surface of Boilers 2445 sq ft Is Forced Draft fitted no No. and Description of Boilers Two single ended multitubular

Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 11th February 11 No. of Certificate 316 & 317

Can each boiler be worked separately yes Area of fire grate in each boiler 34.2 sq ft No. and Description of Safety Valves to each boiler Two spring loaded Area of each valve 4.85 sq in Pressure to which they are adjusted 180 lbs. Are they fitted with easing gear yes

Least distance between boilers or uptakes and bunkers or woodwork 12" Mean dia. of boilers 11'-7" Length 10'-9" Material of shell plates L.M. Steel

Thickness 1" Range of tensile strength 28-32 Tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams Double riv. lap

1. seams Double butt strap Diameter of rivet holes in long. seams 1" Pitch of rivets 6 1/2" Lap of plates or width of butt straps 15"

Percentages of strength of longitudinal joint rivets 90 Working pressure of shell by rules 187 lbs Size of manhole in shell 12" x 16"

No. of compensating ring 24" x 28" x 1" No. and Description of Furnaces in each boiler 2 off Daigton type Material L.M. Steel Outside diameter 3'-9 1/4"

Length of plain part top Thickness of plates crown 7/16" x 3/32 Description of longitudinal joint welded No. of strengthening rings

Working pressure of furnace by the rules 208 lbs Combustion chamber plates: Material L.M. Steel Thickness: Sides 7/16" Back 5/8" Top 9/16" x 1/32 Bottom 7/16" x 1/32

Ch of stays to ditto: Sides 10/16" x 7/16" Back 8 1/2" x 8 1/2" Top 7 3/4" x 8 1/2" If stays are fitted with nuts or riveted heads nuts inside outside both Working pressure by rules 183 lbs

Material of stays L.M. Steel Diameter at smallest part 1 1/2" Area supported by each stay 78 sq in Working pressure by rules 184 lbs End plates in steam space: Material L.M. Steel Thickness 7/8" Pitch of stays 16 3/8" x 14 1/2" How are stays secured screwed into both plates, nuts & rivets washers outside Working pressure by rules 184 lbs

Material at smallest part 2 1/2" Area supported by each stay 232 sq in Working pressure by rules 222 lbs Material of Front plates at bottom L.M. Steel Thickness 7/8" Material of Lower back plate L.M. Steel Thickness 13/16" Greatest pitch of stays 13 1/4" x 8 1/2" Working pressure of plate by rules 184 lbs

Diameter of tubes 3 1/4" Pitch of tubes 4 1/16" x 4 1/2" Material of tube plates L.M. Steel Thickness: Front 7/8" Back 13/16" Mean pitch of stays 11 3/16"

Distance across wide water spaces 13 3/4" Working pressures by rules 267 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 7 3/4" x 1 1/4" Length as per rule 2'-1 1/16" Distance apart 7 3/4" Number and pitch of stays in each 2 off 8 1/16"

Working pressure by rules 230 lbs Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked

Material 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

Fitted 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. Description

Made at By whom made When made Where fixed

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

Dia. of rivet holes Whether punched or drilled Pitch of rivets Lap of plating Per centage of strength of joint Rivets 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:— 2 conn. rod top end & 2 do bottom end bolts with nuts. 2 main bearing bolts. 1 set coupling bolts. 1 set of feed & bilge pump valves. A quantity of assorted bolts and nuts. Iron of various sizes. 1 propeller, 1 propeller shaft. 1 set air pump valves, 1 set oil pump valves, 2 springs for safety valves, assorted springs for cyl. & pump escape valves, 12 cond. tubes, 1 set brasses, 1 set crank pin brasses, 1 set check valves for each boiler, 6 water gauge glasses, 12 boiler tubes, 1/2 set fire bars.

The foregoing is a correct description, May 3rd 1911 AKTIESELSKABET

Manufacturer. KJØDENHAVNS FLYDEDOGSKIBSVÆRFT.

A. Hagerlöse.

Dates of Survey while building

During progress of work in shops— 16/10, 24/10, 25/10, 26/10, 27/10, 28/10, 31/10, 3/11, 4/11, 7/11, 8/11, 10/11, 12/11, 14/11, 15/11, 16/11, 17/11, 18/11, 22/11, 24/11, 26/11, 29/11, 7/12, 9/12, 14/12, 15/12, 20/12

During erection on board vessel— 24/11, 3/12, 8/12, 16/12, 17/12, 20/12, 24/12, 1/1, 3/1, 6/1, 9/1, 11/1, 17/1, 20/1, 3/2, 8/2, 13/2, 17/2, 25/2, 30/2, 7/3, 12/3, 19/3, 20/3, 26/3, 27/3—1911.

Total No. of visits 54

Is the approved plan of main boiler forwarded herewith *yes* from H Dept. Date

" " " donkey " " " by

Dates of Examination of principal parts—Cylinders 17/1 Slides 28/12 Covers 9/12 Pistons 15/12 Rods 26/11

Connecting rods 26/11 Crank shaft 14/12 Thrust shaft 3/2 Tunnel shafts 3/2 Screw shaft 1/2 Propeller 1/2

Stern tube 17/1 Steam pipes tested 13/3 Engine and boiler settings 9/2 Engines holding down bolts 9/2

Completion of pumping arrangements 30/3 Boilers fixed 17/3 Engines tried under steam 12/4 & 27/4

Main boiler safety valves adjusted 19/4 & 20/4 Thickness of adjusting washers *Std 16 7/8 Port 15 7/8* *Std 16 7/8 Port 15 7/8*

Material of Crank shaft *L.M.S. Steel* Identification Mark on Do. *R. No. 1670* Material of Thrust shaft *L.M.S. Steel* Identification Mark on Do. *R. No. 1709*

Material of Tunnel shafts *L.M.S. Steel* Identification Marks on Do. *R. No. 1715, 1720, 1721* Material of Screw shafts *L.M.S. Steel* Identification Marks on Do. *R. No. 1716, 1717, 1718, 1719*

Material of Steam Pipes *Steel* Test pressure 360 lbs

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

In accordance with the rules for Special Survey we have examined the material and workmanship from the commencement until the final trial under steam, and found it good in every respect. The dimensions are as specified and in accordance with the Rules and the approved plans.

On the trial trip the engines and boilers worked satisfactorily.

Recommend the vessel's machinery to have notation of **LMC-4.11**

It is submitted that
this vessel is eligible for
THE RECORD + LMC 4.11

The amount of Entry Fee .. £. 36:36 : When applied for,
Special .. £. 376:33 : 2/5 1911
Electric Light Installation .. £. 90:90 :
Donkey Boiler Fee .. £. 90:90 :
Travelling Expenses (if any) £ : :
When received,
1/11/11

Committee's Minute

Assigned

+ Lmc 4.11

MACHINERY CERTIFICATE

WRITTEN 8/5/11



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