

# REPORT ON MACHINERY.

No. 4090.

Port of Copenhagen

Received at London Office

MON. MAR. - 9. 1914

No. in Survey held at Copenhagen

Date, first Survey 14<sup>th</sup> April 1913

Last Survey 5<sup>th</sup> March 1914

g. Book. Split on the Steel Twin S. 4 Mast. S. "Fionia" (Yard No. 293) (Oil Engines)

(Number of Visits 106)

Gross 5218.59

ster C. Jensen Built at Copenhagen

By whom built Akt. Burmeister & Wain

Tons Net 3337.35

When built 1914

gines made at Copenhagen

By whom made Akt. Burmeister & Wain

when made 1914

ler# made at Aman

By whom made Cochran & Co. Aman Ltd.

when made 1913

istered Horse Power (3900) I.H.P.

Owners Akt. Det Østasiatiske Kompagni

Port belonging to Copenhagen

n. Horse Power as per Section 28

Is Refrigerating Machinery fitted for cargo purposes provision

Is Electric Light fitted Yes

GINES, &c.—Description of Engines 2 off four stroke cycle single acting Diesel Engines No. of Cylinders 12 No. of Cranks 12

of Cylinders 9 1/8" = 740 mm Length of Stroke 435 mm = 1100 mm Revs. per minute 100 Dia. of Screw shafts 15" as per rule Material of S.M.I. Steel

e 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

ie propeller boss Yes If the liner is in more than one length are the joints burned in one length If the liner does not fit tightly at the part

en the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive ✓ If two

s are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 6'-3"

of Tunnel shafts 13 1/4" as per rule Dia. of Crank shaft journals 450 mm as per rule Dia. of Crank pin 450 mm Size of Crank webs as per plan Dia. of thrust shaft under

rs 14" Dia. of screw 13'-0" Pitch of Screw 14'-0" No. of Blades 4 State whether moveable No Total surface 53 square feet

of Feed pumps ✓ Diameter of ditto ✓ Stroke ✓ Can one be overhauled while the other is at work ✓

of Bilge pumps ✓ Diameter of ditto ✓ Stroke ✓ Can one be overhauled while the other is at work ✓

of Donkey Engines 5 off Sizes of Pumps See following sheet No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room 4 off 3 1/2" each In Holds, &c. In No. 1, 2 & 3 holds forward Engine room and in No 4 hold

2 off in each hold 3 1/2" each. In tunnel well 1 off 3 1/2". In No 1 & 5 DB tank 1 off in each 3 1/2" in No 2 & 3 do 4 off in each 3 1/2" in No 4 do 2 off 3 1/2" In FPT & APT 1 off in each 2 1/2"

of Bilge Injections 2 off sizes 5" Connected to condenser, or to circulating pump to centrifugal cooling pumps Is a separate Donkey Suction fitted in Engine room & size one off 6" the ballast pump

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

all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks Valves except blow off cock from Donkey Boiler

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

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

at pipes are carried through the bunkers no 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

es of examination of completion of fitting of Sea Connections 6/10 1913 of Stern Tube 25/9 13 Screw shaft and Propeller 3/10 & 6/10 1913

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

ELERS, &c.—(Letter for record) Manufacturers of Steel

al Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers

orking Pressure Tested by hydraulic pressure to Date of test No. of Certificate

each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to

boiler Area of each valve Pressure to which they are adjusted Are they fitted with easing gear

allest distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates

ickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams

. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps

centages of strength of longitudinal joint rivets Working pressure of shell by rules Size of manhole in shell

of compensating ring No. and Description of Furnaces in each boiler Material Outside diameter

ngth of plain part top Thickness of plates crown Description of longitudinal joint No. of strengthening rings

orking pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom

ch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules

terial of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space:

terial Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays

umeter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom

ickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules

umeter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays

ch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and

ickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each

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

arately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

es Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed

orking pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

Lloyd's Register  
Foundation  
2020  
00209-00209/2  
00-0020 2 1/2



Port of Copenhagen Continuation of Report No. 4090 dated 6<sup>th</sup> March 14 on the

Steel Twin S. & Mast. Pr. "Fionia" of Copenhagen  
(Burmeister & Wain's Yard No. 293).

The auxiliary machinery comprising:-

Two 100 tons centrifugal pumps for cooling water  
One 150 tons rotary ballast pump  
Two pumps each with three separate plungers,  
one being for bilge purposes, one for discharging cooling  
water from guides & pistons, and one for sanitary  
purposes. } All electrically driven.

Diameter of plungers  $6\frac{1}{2}$ ". Stroke 9" Revolutions 100.

Two 4 cylinder four stroke cycle single acting Diesel engines, placed on each side of the engine room and working:-

Two dynamos of 600 Amperes at 220 Volts, supplying electricity for motive power for:-

One shaft motor for the three stage Reavell's auxiliary air compressors.

Two shunt motors for two centrifugal pumps for cooling water.

One shunt motor for the rotary ballast pump.

Two shunt motors for the bilge and sanitary pumps.

Two do do. for four rotary oil pumps for the forced lubrication.

One do do for one rotary oil pump to the daily supply tank.

One do. do. for the rotary wash deck pump.

Two series motors for the turning gear.

Two shunt motors for the refrigerating machinery.

One do do. for the fresh water pump.

One do do for the turning lathe and drilling machine.

One do. do. for the ventilation fan.

One compound motor for the windlass.

One shunt motor for the steering gear.

1/2 series motors for the cargo winches.

And electricity for the lighting installation with the voltage reduced from 220 to 110 after passing the transformer.

An ordinary oil engine is also fitted in the engine room, working a dynamo of 110 Volts, supplying electricity for the lighting installation, - and for a stunt motor, working the spare air compressor.

Orville S. Evans

*A. F. Dubich*  
SURVEYOR TO LLOYD'S  
REGISTER OF SHIPPING

© 2020

Lloyd's Register  
Foundation

002091-002100-0080<sup>2</sup>/<sub>2</sub>

VERTICAL DONKEY BOILER— ~~Manufacturers of Steel~~ Fitted for burning liquid fuel.

No. One Description Cross tube. See Glasgow Report No. 32820.

Made at Annan By whom made Cochran & Co. Annan Ltd. When made 1913 Where fixed In the motor space

Working pressure 80 lbs tested by hydraulic pressure to ✓ Date of test ✓ No. of Certificate 2149 Fire grate area ✓ Description of ✓

Valves Spring loaded ✓ No. of Safety Valves 2 off Area of each  $49 \square$  Pressure to which they are adjusted 80 lbs Date of adjustment 1912

If fitted with easing gear Yes ✓ 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 ✓ Stayed by ✓

Diameter of uptake ✓ Thickness of uptake plates ✓ Thickness of water tubes ✓ Dates of survey ✓

One Donkey Boiler feed pump (duplex type) Steam cyl. 3" diam, water cyl. 2" diam. Works 3, and one feed in.

SPARE GEAR. State the articles supplied: ✓ See accompanying list.

*The foregoing is a correct description,*

AKTIESELSKABET  
BURMEISTER & WAIN'S MASKIN- OG SKIBSBYGGERI

*Manufacturer.*

Arthur Deppan

Dates of Survey while building { During progress of work in shops - 14, 16, 21, 23, 26, 29 April, 30 May, 4, 13, 14, 18 June, 1, 2, 4, 9, 11, 14, 16, 18, 23, 25, 28 July, 4, 5, 8, 12, 13, 15, 18, 20, 22, 23, 25, 28 August  
 During erection on board vessel - 3, 4, 5, 6, 9, 10, 12, 15, 16, 17, 18, 19, 23, 25, 27, 29 Sept., 1, 2, 3, 6, 10, 12, 14, 20, 21, 24, 28, 29 Oct., 1, 4, 7, 10, 12, 14, 23, 28 Nov., 2, 3, 4, 6, 8, 9, 13, 15, 17, 18, 21 Decr., 13. 2, 9, 10, 13, 15, 16, 20, 26, 31 Jan., 2, 5, 6, 10, 11, 14, 16, 19, 27 Feb., 4, 5, 8 March 1914.  
 Total No. of visits 106.

Is the approved plan of main boiler forwarded herewith *None*

Dates of Examination of principal parts—Cylinders	14/9, 25/2, 19/8, 25/8, 17/9, 15/9, 17/13.	Slides	V	Covers	16/9, 15/6, 25/8, 9/9, 27/9, 17/13.	Pistons	16/9, 13/4, "11/8 3/2, 12/13.	Rods	11/9, 25/9, 27/10, 2/10.
Connecting rods	13/6, 2/2, 4/9, 27/9, 17/13.	Crank shaft	11/4, 27/6, 7/6, 7/6, 23/8, 17/9, 14/13.	Thrust shaft	18/6, 18/6, 8/9, 15/12, 13.	Tunnel shafts	14/9, 12/4, 24/9, 1/10, 29/10, 10/13.	Screw shaft	6/10, 2/12.
Stern tube	16/9, 27/9, 19/13	Steam pipes tested	V	Engine and boiler seatings	19/9, 2/10, 19/13.	Engines holding down bolts	21/9, 26/6, 9/11		
Completion of pumping arrangements	2/12, 19/13	Boilers fixed	14/10, 19/13	Engines tried under	working condition <del>steam</del>	11/2, 13/12, 22/12, 13/1,			
Main boiler safety valves adjusted	17/12, 19/13	Thickness of adjusting washers	Forward valve 9 "	1/4 aftermost do. 12 5 "					
Material of Crank shaft	S.M.I Steel	Identification Mark on Do. No. 3285, 3488 & 13 A.F.C. No. 3245 & 9 A.F.C.	Material of Thrust shaft	S.M.I Steel	Identification Mark on Do. 9-13-A-F	No. 3326 & 3327 & 3328			
Material of Tunnel shafts	S.M.I Steel	Identification Marks on Do. 3329, 3330, 3321, 3352, 3323 & 3324 & 9 A.F.C.	Material of Screw shafts	S.M.I Steel	Identification Marks on Do. 10-13-A-F	No. 3357 & 3358 on spare shaft No. 3343			
Material of Steam Pipes	none	Test pressure	V						

*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 and found good in every respect.

The dimensions are as specified and in accordance with the approved plans and letters E dated the 28<sup>th</sup> Novr. 11<sup>th</sup> Decemr 1912, 7<sup>th</sup> x 26<sup>th</sup> Febr. 4<sup>th</sup> March, 1913 x 22<sup>nd</sup> Septbr. 1913.

On their test under full power working condition the machinery worked satisfactorily and manoeuvred with precision.

Recommend the vessel's machinery to have notation of ~~8~~ LMC-3

The amount of Entry Fee. . .	Rs 54 : 54 :	When applied for.	7-3-1918
Special . . .	Rs 1072 : 62 :		
<i>Electric light</i>			
<del>Donkey Boiler Fee . . .</del>	<del>Rs 181 : 80 :</del>	When received.	17-3-1918
Travelling Expenses (if any) £ . . .			

Committee's Minute

Assigned

MACHINERY CERTIFICATE  
WRITTEN.

Lm 6.3.14  
oil engine

*A. O. Jebb.*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping