

# REPORT ON MACHINERY.

Received at London Office FRI. DEC. 29. 1911

Date of writing Report 26 Dec 1911 When handed in at Local Office

Port of Amsterdam

No. in Survey held at Delfzijl  
Reg. Book. 19 in Sep on the S. S. Combo

Date, First Survey 27 Jun Last Survey 16 Dec 1911  
(Number of Visits 10)

Master E. Marie Built at Delfzijl By whom built Joh Berg

Tons } Gross 170.54  
Net 89.08  
When built 1911

Engines made at Delfzijl By whom made Joh Berg

when made 1911

Boilers made at Delfzijl By whom made Joh Berg

when made 1911

Registered Horse Power Owners Maurel & W. Prom

Port belonging to Dakar

Nom. Horse Power as per Section 28 48.59 Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

## ENGINES, &c.—Description of Engines Compound inverted

Dia. of Cylinders 12 1/2" x 26" Length of Stroke 14 1/16" Revs. per minute 180 Dia. of Screw shaft as per rule 5.95" Material of screw shaft as fitted 6" screw shaft

No. of Cylinders two No. of Cranks two

Is the screw shaft fitted with a continuous liner the whole length of the stern tube

in the propeller boss Yes. If the liner is in more than one length are the joints burned

between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

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

Dia. of Tunnel shaft as per rule 5.3" Dia. of Crank shaft journals as per rule 5.565" Dia. of Crank pin 5 9/16" Size of Crank webs 1 1/2" x 3" Dia. of thrust shaft under collars 5 9/16" Dia. of screw 7/2" Pitch of Screw 84" No. of Blades 4 State whether moveable No Total surface 18 sq ft

No. of Feed pumps One Diameter of ditto 2" Stroke 8" Can one be overhauled while the other is at work

No. of Bilge pumps One Diameter of ditto 2" Stroke 8" Can one be overhauled while the other is at work

No. of Donkey Engines One Sizes of Pumps duplex 4 1/2" x 2 1/4" x 4" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room two 2" In Holds, &c. three 2"

No. of Bilge Injections One sizes 2 1/2" Connected to condenser or circulating pump Yes. Is a separate Donkey Suction fitted in Engine room & size Yes 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 Valves & cocks.

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 14 Oct of Stern Tube 3 Oct Screw shaft and Propeller 14 Oct 1911

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door No worked from

## BOILERS, &c.—(Letter for record S) Manufacturers of Steel David Colville & Sons, Schulz Krauss.

Total Heating Surface of Boilers 10384 sq ft Forced Draft fitted No No. and Description of Boilers One Single Ended Marine type

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 14 Oct No. of Certificate 141.

Can each boiler be worked separately Area of fire grate in each boiler 34 sq ft No. and Description of Safety Valves to each boiler two direct spring Area of each valve 4 7/8 sq in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 7" Mean dia. of boilers 9' 6" Length 10' 2 1/2" Material of shell plates Steel

Thickness 7/8" Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged plain Descrip. of riveting: cir. seams double riv long. seams double rivets Diameter of rivet holes in long. seams 1" Pitch of rivets 6 1/4" Lap of plates or width of butt straps 14" as per plan

Per centages of strength of longitudinal joint rivets 95 plate 24 Working pressure of shell by rules 194 lbs Size of manhole in shell 15 3/4" diam

Size of compensating ring 4' 8" No. and Description of Furnaces in each boiler two Morrison Material steel Outside diameter 37 3/8"

Length of furnace top 7' 7" bottom 7' 7" Thickness of plates crown 1/2" bottom 1/2" Description of longitudinal joint welded No. of strengthening rings

Working pressure of furnace by the rules 196 lbs Combustion chamber plates: Material steel Thickness: Sides 4 3/64 Back 4 3/64 Top 4 3/64 Bottom 4 3/64

Pitch of stays to ditto: Sides 8" Buck 8" Top 8 1/4" If stays are fitted with nuts or riveted heads riveted heads Working pressure by rules 182 lbs

Material of stays steel Diameter at smallest part 1 1/2" Area supported by each stay 64 sq in Working pressure by rules 195 lbs End plates in steam space: Material steel Thickness 1 and 15/16 Pitch of stays 17 1/8 How are stays secured screwed double nuts riveted to end plates Working pressure by rules 204 lbs Material of stays steel

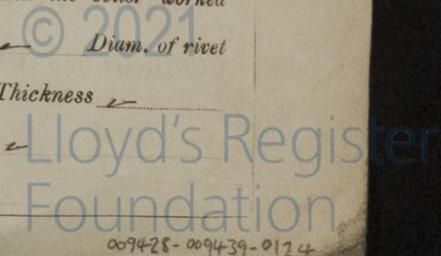
Diameter at smallest part 3 3/8" Area supported by each stay 17 1/8" Working pressure by rules 308 lbs Material of Front plates at bottom steel

Thickness 1" Material of Lower back plate steel Thickness 1 5/16" Greatest pitch of stays Working pressure of plate by rules

Diameter of tubes 3 1/4" Pitch of tubes 4 1/4" Material of tube plates steel Thickness: Front 1" Back 2 5/32" Mean pitch of stays 8 1/2"

Pitch across wide water spaces 14 1/4" Working pressures by rules 496-302-356 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 6" x 1 1/2" Length as per rule 23 5/8" Distance apart 8 1/4" Number and pitch of stays in each two 8"

Working pressure by rules 189 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



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:— propeller, screw shaft, neckring, One piston rod & valve spindle, complete set of main bottom rings, One set of valves for all pumps, One set of bolts for all parts, Bolts and nuts assorted, 15 Condenser and 6 boiler tubes.

The foregoing is a correct description,

Manufacturer. *J. M. & Co. Ltd.*

Dates of Survey while building: During progress of work in shops -- 27 June, 27 July, 25 August, 14 Sept. 5, 14 and 31 October, 6 and 21 Nov. and 16 Dec 1911.  
During erection on board vessel ---  
Total No. of visits 10

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

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

Dates of Examination of principal parts—Cylinders 27-6, 27-7, 14-9 Slides 14-9, 14-10 Covers 14-10 Pistons 14-9, 14-10 Rods 14-9, 14-10  
Connecting rods 25-8, 14-9 Crank shaft 25-8, 14-9, 14-10 Thrust shaft 27-7, 14-9, 14-10 Tunnel shafts 27-7, 14-9, 14-10 Screw shafts 27-7, 14-9, 14-10 Propeller 3-14-10  
Stern tube 3-14-10 Steam pipes tested 2-11-1911 Engine and boiler seatings 31-10, 6-11 Engines holding down bolts 6-11-1911  
Completion of pumping arrangements 16-12-1911 Boilers fixed 31-10-1911 Engines tried under steam 16-12-1911  
Main boiler safety valves adjusted 16-12-1911 Thickness of adjusting washers SB 1/8 BB 1/4

Material of Crank shaft *L. M. & Co. Ltd.* Identification Mark on Do. 4077 JM. Material of Thrust shaft *J. M. & Co. Ltd.* Identification Mark on Do. *L. M. & Co. Ltd.*

Material of Tunnel shafts *L. M. & Co. Ltd.* Identification Marks on Do. 390, 21 MB Material of Screw shafts *L. M. & Co. Ltd.* Identification Marks on Do. 392 MB

Material of Steam Pipes *Copper* Test pressure 360 lbs.

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

This vessel's machinery and boiler have been constructed according to the Society's rules and approved plans now returned to London Office. Material and workmanship throughout good. Cylinders, Condenser and boiler tested under hydraulic pressure with satisfactory results. Engines & boiler upon trial trip in good working condition, no kitcher or heating whatever, pumps drawing from all compartments. I am of opinion that this vessel is eligible to be recorded in the Society's Register Book.  LMC-12.1911.

Certificate (if required) to be sent to Liverpool & Amsterdam. (The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee .. £ 12- : When applied for.  
Special .. £ 96 : Dec 1911  
Donkey Boiler Fee .. £ : When received.  
Travelling Expenses (if any) £ 73-35 : Dec 1911

*J. M. & Co. Ltd.*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute TUE. JAN. 2--1912

Assigned *See Minute on ans. Rpt*

5059<sup>6</sup> attached



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