

REPORT ON MACHINERY.

No. 22074

Port of Hull.

Received at London Office

JAN. 18 JAN 1910

No. in Survey held at Hull. Date, first Survey Sep. 18/09 Last Survey Jan. 4th 1910
Reg. Book. 1589, on the S/S *Lawler* *VARANIS* (Number of Visits 28)
Master Built at Selby. By whom built Buchanan & Sons. Tons Gross 258 Net 107
Engines made at Hull. By whom made Amos & Smith Ltd. when made 5
Boilers made at 5 By whom made 5 when made 5
Registered Horse Power - Owners *McKie & Co. Fishing & Ice* Port belonging to *Grimby*
Nom. Horse Power as per Section 28 69. Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted No.

ENGINES, &c.—Description of Engines *Inverted triple expansion* No. of Cylinders 3 No. of Cranks 3
Dia. of Cylinders 12-21-34 Length of Stroke 24 Revs. per minute 116 Dia. of Screw shaft as per rule 7.08 as fitted 7.3 Material of screw shaft 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 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'-0"
Dia. of Tunnel shaft as per rule 6.25 as fitted 6.2 Dia. of Crank shaft journals as per rule 6.56 as fitted 6.3 Dia. of Crank pin 6.7 Size of Crank webs 13 1/2 x 4 1/2 Dia. of thrust shaft under
collars 6 7/8 Dia. of screw 8'-9" Pitch of Screw 10'-9" No. of Blades 4 State whether moveable No. Total surface 29 ft²
No. of Feed pumps 1 Diameter of ditto 2 1/2 Stroke 13 Can one be overhauled while the other is at work
No. of Bilge pumps 1 Diameter of ditto 3 Stroke 13 Can one be overhauled while the other is at work
No. of Donkey Engines one Sizes of Pumps 6 x 3 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room 1-2" Ford. In Holds, &c. 3-2" For peat, fish room, reserve
bunker 1-2 1/2" Ejector suction to all bilges with discharge on deck.
No. of Bilge Injections 1 sizes 3" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size 2 1/2" Ejector
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 Hold suction How are they protected Wood casing.
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 26.11.09 of Stern Tube 26.11.09 Screw shaft and Propeller 26.11.09
Is the Screw Shaft Tunnel watertight None Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Phoenix & Horns, Westphalia
Total Heating Surface of Boilers 1164 ft² Is Forced Draft fitted No. No. and Description of Boilers 1 S.E. Multitubular
Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 18/12.09. No. of Certificate 1728.
Can each boiler be worked separately Area of fire grate in each boiler 34 ft² No. and Description of Safety Valves to
each boiler 2 Spring loaded. Area of each valve 3.97" 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 5" Mean dia. of boilers 12'-0" Length 10'-1 1/2" Material of shell plates Steel.
Thickness 1" Range of tensile strength 28-32 Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams SH Lap
long. seams SH S. rivets Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 7 1/2" Lap of plates or width of butt straps 16 1/4"
Per centages of strength of longitudinal joint rivets 98.5 plate 85 Working pressure of shell by rules 181 Size of manhole in shell 16 x 12"
Size of compensating ring 40 x 30 x 1 No. and Description of Furnaces in each boiler 1 plain Material: Steel Outside diameter 3'-6 1/2"
Length of plain part top 72 bottom 64 Thickness of plates crown 4 1/2 bottom 4 1/2 Description of longitudinal joint Welded. No. of strengthening rings one.
Working pressure of furnace by the rules 185 Combustion chamber plates: Material Steel Thickness: Sides 4 1/2 Back 4 1/2 Top 5 Bottom 4 1/2
Pitch of stays to ditto: Sides 9 1/2 x 7 Back 9 1/2 x 8 1/2 Top 7 1/2 x 8 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 208
Material of stays Steel Diameter at smallest part 2'-2 1/2" Area supported by each stay 78.5" Working pressure by rules 236 End plates in steam space:
Material Steel Thickness 3/32 Pitch of stays 16 x 1 1/2 How are stays secured Riveted Working pressure by rules 181 Material of stays Steel.
Diameter at smallest part 5'-0 1/2" Area supported by each stay 244" Working pressure by rules 215 Material of Front plates at bottom Steel.
Thickness 2 1/2" Material of Lower back plate Steel Thickness 1 1/2" Greatest pitch of stays 14 x 9 1/2 Working pressure of plate by rules 216
Diameter of tubes 3 1/2" Pitch of tubes 5 x 4 1/2 Material of tube plates Steel Thickness: Front 3/32 Back 3/32 Mean pitch of stays 10 x 9 1/2
Pitch across wide water spaces 14" Working pressures by rules 182 Girders to Chamber tops: Material Steel Depth and
thickness of girder at centre 7 3/4 x 2 Length as per rule 2'-9" Distance apart 8" Number and pitch of stays in each 30 7 1/2
Working pressure by rules 140 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 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		Stayed by		
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey		

SPARE GEAR. State the articles supplied:— *Two top & two bottom end connecting rod bolts & nuts
two main bearing bolts, one set of coupling bolts & nuts, one set of fuel & high pump
valves, one main & one donkey fuel check valve, assorted bolts & nuts etc*

FOR AMOS & SMITH LTD.

The foregoing is a correct description,

Manufacturer.

W. J. Hide
Managing Director.

Dates of Survey while building	During progress of work in shops—	1909: Sep. 18. 23. Oct. 6. 9. 14. 22, 27, 28, 30. Nov. 2. 5. 10. 13. 20. 25. 26. Dec. 1. 8. 10. 13. 16. 18. 20. 24. 30
	During erection on board vessel—	1910: Jan. 1. 3. 4.
	Total No. of visits	28

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

" " " donkey " " " *yes*

Dates of Examination of principal parts—		Cylinders	5.11.09	Slides	25.11.09	Covers	5.11.09	Pistons	2.11.09	Rods	2.11.09	
Connecting rods		18.11.09	Crank shaft	5.11.09	Thrust shaft	1.12.09	Tunnel shafts	✓	Screw shaft	13.11.09	Propeller	13.11.09
Stern tube		13.11.09	Steam pipes tested	24.12.09	Engine and boiler seatings	26.11.09	Engines holding down bolts	18.12.09				
Completion of pumping arrangements		2.1.10.	Boilers fixed	30.12.09	Engines tried under steam	30.12.09						
Main boiler safety valves adjusted		4.1.10.	Thickness of adjusting washers	7 3/8 5 5/8								
Material of Crank shaft		Steel	Identification Mark on Do.	655 J.14	Material of Thrust shaft	Steel	Identification Mark on Do.	655 J.14				
Material of Tunnel shafts		✓	Identification Marks on Do.	✓	Material of Screw shafts	Iron	Identification Marks on Do.	655 J.14				
Material of Steam Pipes		Solid drawn Copper	Test pressure	360 lbs.								

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery & boiler of this vessel have been constructed under Special Survey, are of good material & workmanship & have been fitted & secured on board in accordance with the Rules. They are now in good working condition & eligible in my opinion to have record of T.L.M.C. 1-10 in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 1.10

WED
JIM 18.1.10.

The amount of Entry Fee..	£ 1 : 0 0	When applied for,	17.1-19.10
Special ..	£ 10 : 7 0	When received,	28.1-19.10
Donkey Boiler Fee ..	£ :		
Travelling Expenses (if any) £	: 8 2		

John W. Fyfe
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI. 21 JAN 1910

Assigned

+ L.M.C. 1.10



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