

REPORT ON MACHINERY.

No. 27149

Received at London Office

WED. 4 NOV 1906

Date of writing Report

19

When handed in at Local Office

2nd Nov. 1906. Port of GlasgowNo. in Survey held at
Reg. Book.

Glasgow

Date, First Survey

15th Jan. 1906. Last Survey24th Oct. 1906on the Engine & Boilers n^o 48617 for Dredger "Leviathan"

Number of Visits 36

Gross

Net

When built

Master

Built at Birkenhead

By whom built Cammell Laird & Co. Ltd.

Engines made at

Glasgow

By whom made

David Rowan & Co.

when made 1908

Boilers made at

Glasgow

By whom made

do

when made 1908

Registered Horse Power

Owners Transvaal Bay Dist. Co. Ltd.

Port belonging to

Nom. Horse Power as per Section 28

631

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

ENGINES, &c.—Description of Engines *Twin Screw Triple Expansion* No. of Cylinders *6* No. of Cranks *6*
 Dia. of Cylinders *(2) 22½ (2) 37 (2) 61* Length of Stroke *45* Revs. per minute *13.9* Dia. of Screw shaft *as per rule 13.9* Material of screw shaft *Steel*
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube *No* Is the after end of the liner made water tight in the propeller boss *—* 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 *7-7"*
 Dia. of Tunnel shaft *as per rule 11.59"* Dia. of Crank shaft journals *as per rule 12.17"* Dia. of Crank pin *12½"* Size of Crank webs *8½"* Dia. of thrust shaft under collars *13"* Dia. of screw *16-6"* Pitch of Screw *16-0"* No. of Blades *4* State whether moveable *No* Total surface *95.2 sq ft*
 No. of Feed pumps *none on main engine* Diameter of ditto *Stroke 15"* Can one be overhauled while the other is at work *—* 3 Wires *9 x 12 x 21"*
 No. of Bilge pumps *2* Diameter of ditto *3¾"* Stroke *24"* Can one be overhauled while the other is at work *Yes*
 No. of Donkey Engines *2 Supplied* Sizes of Pumps *8x10x8, 6x6x8* No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room *—* In Holds, &c. *—*

No. of Bilge Injections *—* sizes *—* Connected to condenser, or to circulating pump *—* Is a separate Donkey Suction fitted in Engine room & size *—*
 Are all the bilge suction pipes fitted with roses *—* Are the roses in Engine room always accessible *—* Are the sluices on Engine room bulkheads always accessible *—*
 Are all connections with the sea direct on the skin of the ship *—* Are they Valves or Cocks *—*
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates *—* Are the Discharge Pipes above or below the deep water line *—*
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel *—* Are the Blow Off Cocks fitted with a spigot and brass covering plate *—*
 What pipes are carried through the bunkers *—* How are they protected *—*
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times *—*
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges *—*
 Dates of examination of completion of fitting of Sea Connections *—* of Stern Tube *—* Screw shaft and Propeller *—*
 Is the Screw Shaft Tunnel watertight *—* Is it fitted with a watertight door *—* worked from *—*

BOILERS, &c.—(Letter for record (S)) Manufacturers of Steel *Messrs Stewarts & Lloyds Ltd & Wm. Beardmore & Co. Ltd.*
 Total Heating Surface of Boilers *10956* Is Forced Draft fitted *No* No. and Description of Boilers *4 Single Ended*
 Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs* Date of test *18/9/08* No. of Certificate *9663*
 Can each boiler be worked separately *—* Area of fire grate in each boiler *71.6* No. and Description of Safety Valves to each boiler *Cockburn double* Area of each valve *7"* Pressure to which they are adjusted *—* Are they fitted with easing gear *—*
 Smallest distance between boilers or uptakes and bunkers or woodwork *—* Mean dia. of boilers *16-0"* Length *11-9"* Material of shell plates *Steel*
 Thickness *1 1/32"* Range of tensile strength *28450-32000* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *D.R.L.* long. seams *D.B.S.* Diameter of rivet holes in long. seams *17/16"* Pitch of rivets *9.3/25"* Lap of plates or width of butt straps *2.0 3/4"*
 Per centages of strength of longitudinal joint *101* rivets *84.56* Working pressure of shell by rules *180 lbs* Size of manhole in shell *16x12"*
 Size of compensating ring *Flanged* No. and Description of Furnaces in each boiler *2 Morrison* Material *Steel* Outside diameter *4-3 3/8"*
 Length of plain part *top 23 3/4"* Thickness of plates *bottom 2 3/16"* Description of longitudinal joint *weld* No. of strengthening rings *—*
 Working pressure of furnace by the rules *180* Combustion chamber plates: Material *Steel* Thickness: Sides *9/32"* Back *9/32"* Top *9/32"* Bottom *3/4"*
 Pitch of stays to ditto: Sides *8x8 3/16"* Back *7 1/8x8 5/16"* Top *8x8"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *183*
 Material of stays *Steel* Diameter at smallest part *1.48"* Area supported by each stay *66"* Working pressure by rules *180* End plates in steam space: Material *Steel* Thickness *1 3/8"* Pitch of stays *2 1/2x2 1/2"* How are stays secured *D. Nuts* Working pressure by rules *183* Material of stays *Steel*
 Diameter at smallest part *8.85"* Area supported by each stay *460* Working pressure by rules *200* Material of Front plates at bottom *Steel*
 Thickness *7/8"* Material of Lower back plate *Steel* Thickness *2 7/32"* Greatest pitch of stays *14"* Working pressure of plate by rules *185*
 Diameter of tubes *3 1/4"* Pitch of tubes *4 1/2x4 3/4"* Material of tube plates *Steel* Thickness: Front *1"* Back *13/16"* Mean pitch of stays *11 1/8"*
 Pitch across wide water spaces *14"* Working pressures by rules *183 lbs* Girders to Chamber tops: Material *Steel* Depth and thickness of girder at centre *8x1x2"* Length as per rule *35"* Distance apart *8"* Number and pitch of stays in each *3-8"*
 Working pressure by rules *180* 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	Percentage 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:—propeller shaft & coupling, 2 propellers, set top & bottom and brasses, air pump rod, set air pump valves, set piston rings each size main & aux. engines, slide valve spindle, eccentric strap, set waste pump valves, 24 condenser tubes, 12 boiler tubes & bolts as required by the Rules.

The foregoing is a correct description,

Manufacturer.

David Rowan & Co.

Dates	During progress of work in shops—	1908 Jan. 15. Feb. 20. Mar. 6. 23. 24. 26. Apr. 6. May 1. 8. 18. 22. 30. June 4. 8. 11. 15. 20.
of Survey while building	During erection on board vessel—	July 6. 15. Aug. 3. 15. 18. 21. 26. Sept 2. 16. 18. 21. 29. Oct. 2. 7. 13. 15. 19. 20. 24.
	Total No. of visits	36.

Is the approved plan of main boiler forwarded herewith ☒ Yes

Dates of Examination of principal parts—	Cylinders 4/6/08	Slides 4/6/08	Covers 4/6/08	Pistons 4/6/08	Rods 4/6/08
Connecting rods 4/6/08	Crank shaft 3/4/08	Thrust shaft 3/4/08	Tunnel shafts 15/7/08	Screw shaft 21/8/08	Propeller 21/8/08
Stern tube 3/6/08	Steam pipes tested 20/10/08	Engine and boiler seatings	Engines holding down bolts		
Completion of pumping arrangements	Boilers fixed	Engines tried under steam			
Main boiler safety valves adjusted	Thickness of adjusting washers				
Material of Crank shaft steel	Identification Mark on Do. H95	Material of Thrust shaft steel	Identification Mark on Do. H95		
Material of Tunnel shafts steel	Identification Marks on Do. H95	Material of Screw shafts steel	Identification Marks on Do. H95		
Material of Steam Pipes Copper	Test pressure 360 lbs.				

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

These engines & boilers are of good workmanship & materials. They have been forwarded to Birkenhead to be fitted on board the Dredger Leviathan.

The amount of Entry Fee.	£ 3 : 7 : 4	When applied for.	2/11/1908
Special	£ 17 : 3 : 8	When received.	9/11/1908
Donkey Boiler Fee	£ :		
Travelling Expenses (if any)	£ :		

H Gardner-Smith.
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute GLASGOW 3-NOV. 1908

Assigned

Deferred for completion



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Lloyd's Register
Foundation

Certificate (if required) to be sent to Committee's Minute.

22/11/08