

REPORT ON MACHINERY.

No. 15318

THU. 7-DEC. 1916

Received at London Office

of writing Report 2nd Dec 1916 When handed in at Local Office 14/12/16 Port of West Hartlepool

in Survey held at West Hartlepool Date, First Survey 23rd Feb 1915 Last Survey 25th Nov 1916

Book. on the steel screw steamer "Palm Leaf" (ex "Orphan") (Number of Vols. 5488-60

Master - Daniel Built at West Hartlepool By whom built James D.B. & S.O. Co. Ld. Tons Gross 5488-60 Net 3205-86

Machines made at Hartlepool By whom made Richardson, Westgarth & Co. Ld. when made 1916

Boilers made at Hartlepool By whom made Richardson, Westgarth & Co. Ld. when made 1916

Indicated Horse Power Owners Lane & McClelland Ld. Port belonging to London.

Actual Horse Power as per Section 28 477 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

GINES, & Co. - Description of Engines Triple Expansion (Inverted Cylinder) No. of Cylinders Three No. of Cranks Three

No. of Cylinders 26-42-70 Length of Stroke 48 Revs. per minute 70 Dia. of Screw shaft as per rule 14-8 as fitted 15-0 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

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 yes If two

are fitted, is the shaft lapped or protected between the liners Length of stern bush 5-0

No. of Tunnel shaft as per rule 12-98 as fitted none Dia. of Crank shaft journals as per rule 13-63 as fitted 13-3/4 Dia. of Crank pin 14

Size of Crank webs 8 1/2 x 20-0 Dia. of thrust shaft under

are 14-1/2 Dia. of screw 14-6 Pitch of Screw 14-0 No. of Blades four State whether moveable no Total surface 96-2

No. of Feed pumps Two Diameter of ditto 3 1/2 Stroke 24 Can one be overhauled while the other is at work yes

No. of Bilge pumps Two Diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work yes

No. of Donkey Engines Three Sizes of Pumps General Service 5x6 1/2 11x9 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room one 1/2 3 1/2, one Main Engine Direct 2 1/2, Boiler Room two 3 1/2 In Holds, &c. in Pump Room two 2 1/2 Connected with all Pumps

No. of Bilge Injections six sizes 6 Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size yes 3 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

Are all pipes 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

Time of examination of completion of fitting of Sea Connections 15/8/16 of Stern Tube 14/8/16 Screw shaft and Propeller 10/8/16

Is the Screw Shaft Tunnel watertight no tunnel Is it fitted with a watertight door worked from

MILLERS, & Co. - (Letter for record 5) Manufacturers of Steel J. Spencer & Sons Ld. & Leeds Forge Co. Ld.

Total Heating Surface of Boilers 8848 1/2 Is Forced Draft fitted no No. and Description of Boilers four Single End Cyl. Multi

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 14/3/16 No. of Certificate 3424

Can each boiler be worked separately yes Area of fire grate in each boiler 160 sq ft No. and Description of Safety Valves to

each boiler two direct spring Area of each valve 7.07 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 18 Mean dia. of boilers 15-3 Length 11-0 Material of shell plates steel

Thickness 1 1/2 Range of tensile strength 28 1/2 to 32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams Lap & R.

1. seams DBS-TR Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 8 3/8 Lap of plates or width of butt straps 1 1/2

Percentages of strength of longitudinal joint rivets 84.9 plate 80.45 Working pressure of shell by rules 182 lbs Size of manhole in shell 16 1/2 x 13

No. of compensating ring 7 3/4 x 1 1/2 No. and Description of Furnaces in each boiler 3 Duplex Material steel Outside diameter 48 3/4

Length of plain part top 12 bottom 10 Thickness of plates crown 19 bottom 32 Description of longitudinal joint Weld No. of strengthening rings

Working pressure of furnace by the rules 194 lbs Combustion chamber plates: Material steel Thickness: Sides 19/32 Back 19/32 Top 19/32 Bottom 19/32

Each of stays to ditto: Sides 1/2 x 8 1/4 Back 8 1/4 x 8 Top 1/2 x 8 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180 lbs

Material of stays steel Diameter at smallest part 1 3/8 Area supported by each stay 8 1/4 x 8 Working pressure by rules 180 lbs End plates in steam space:

Material steel Thickness 5 1/2 Pitch of stays 5 1/2 x 24 How are stays secured 3/4 x 5/8 Working pressure by rules 180 lbs Material of stays steel

Diameter at smallest part 2-92 Area supported by each stay 17 x 21 Working pressure by rules 194 lbs Material of Front plates at bottom steel

Thickness 1/2 Material of Lower back plate steel Thickness 27/32 Greatest pitch of stays 14 x 8 1/4 Working pressure of plate by rules 190 lbs

Diameter of tubes 3 1/2 Pitch of tubes 4 1/4 x 4 1/4 Material of tube plates steel Thickness: Front 1 7/8 Back 25/32 Mean pitch of stays 10 1/2

Each across wide water spaces 14 1/2 Working pressures by rules 183 lbs Girders to Chamber tops: Material steel Depth and

Thickness of girder at centre 8 1/4 x 1 3/4 Length as per rule 3 1/5 Distance apart 8 5/8 Number and pitch of stays in each three 1/2

Working pressure by rules 181 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 rivets

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

Strengthened 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

IS A DONKEY BOILER FITTED? *no Donkey Boiler* If so, is a report now forwarded? *—*

SPARE GEAR. State the articles supplied:— *Two each top End, Bottom End + Main Bearing Bolts + nuts one set coupling bolts, one Propeller + shaft - 1 Crank - one on pump rod, one connecting pump + pump for pump + driving links, one valve spindle, 1 complete Bottom End Bush (std) one set of top End Bushes, one Eccentric + bolts, one set of feet + kegs main + check valves. Assorted iron, etc.*

The foregoing is a correct description,
For RICHARDSON, WESTGARTH & Co., LIMITED
R. Westgate ASSISTANT GENERAL MANAGER Manufacturer.

Dates of Survey while building
During progress of work in shops - *1915. Feb 23. Mar 2. 4. 8. 16. Apr 21. 23. May 3. 11. 18. 19. 21. 26. 31. June 14. 17. July 13. Aug 10. Sep 17. Nov 22. Dec 1.*
During erection on board vessel - *30. 31. 1916. Jan 4. 5. 10. 11. 14. 17. 18. 21. 24. 26. 28. 31. Feb 4. 7. 8. 9. 11. 14. 16. 17. 23. 25. 28. Mar 1. 3. 6. 7. 9. 10. 13. 14. 15. 17. 22. 23. 27.*
Total No. of visits *198*

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

“ “ “ donkey “ “ “ “

Dates of Examination of principal parts—Cylinders *22/11/16* Slides *3/11/16* Covers *7/11/16* Pistons *14/11/16* Rods *30/11/16*
Connecting rods *5/11/16* Crank shaft *3/11/16* Thrust shaft *14/11/16* Tunnel shafts *none* Screw shaft *7/11/16* Propeller *19/11/16*
Stern tube *20/11/16* Steam pipes tested *25/11/16* Engine and boiler seatings *17/8/16* Engines holding down bolts *30/5/16*
Completion of pumping arrangements *25/11/16* Boilers fixed *13/10/16* Engines tried under steam *25/11/16*
Main boiler safety valves adjusted *25/11/16* Thickness of adjusting washers *AS = 7/16 A = 3/8 AP = 1/4 A = 3/8 FSE = 3/8 A = 3/8 FPF = 3/8 A = 3/8*

Material of Crank shaft *steel* Identification Mark on Do. *(5736)* Material of Thrust shaft *steel* Identification Mark on Do. *(5736)*
Material of Tunnel shafts *none* Identification Marks on Do. — Material of Screw shafts *iron* Identification Marks on Do. *(5736)*
Material of Steam Pipes *not iron* Test pressure *540 lbs*

Is an installation fitted for burning oil fuel *yes* Is the flash point of the oil to be used over 150°F. *yes*
Have the requirements of Section 49 of the Rules been complied with *yes*
Is this machinery duplicate of a previous case *no* If so, state name of vessel *—*

General Remarks (State quality of workmanship, opinions as to class, &c.)
Evaporator Body tested to 50 lbs. thick test to 400 lbs. pressure. (598 150 lbs 14/11/16) Exhaust Water Body tested to 50 lbs. thick test to 400 lbs. pressure. (598 150 lbs 14/11/16)

The Engines & Boilers of this vessel have been constructed under special supervision.
The material & workmanship sound & good. The Boilers & Steam pipes have been tested by hydraulic pressure in accordance with the Rules and the Boilers arranged to work with oil fuel the whole of the connections having been subjected to hydraulic pressure in accordance with the schedule of tests.
The whole of the Machinery worked satisfactorily on the trial.
The Safety Valves have been adjusted under steam to their working pressure & Easing gear has been fitted rendering this vessel eligible for our opinion for the notation ** LMC 180 lbs 11/16 Fitted for Burning Liquid fuel F.P. above 150°F.*

WEST HARTLEPOOL
Certificate (if required) to be sent to:
The amount of Entry Fee ... £ 3 : 0 :
Special ... £ 43 : 17 :
Donkey Boiler Fee ... £ 40 :
Travelling Expenses (if any) £
Committee's Minute
Assigned
+ LMC 11.16.
Fitted for oil fuel 11.16
F.P. above 150°F.

When applied for, *5/12/16*
When received, *7/12/16*
TUE 12 DEC 1916
12/12/16
13/12/16

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping
W.D. 9/12/16
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TUE FEB 13 1917
Lloyd's Register
Foundation