

Rpt. 4.

REPORT ON MACHINERY.

No. 3635.

Received at London Office MON. 21 NOV. 1921

Date of writing Report 19 When handed in at Local Office 19 Port of SAN FRANCISCO.

No. in Survey held at San Francisco, Cal. Date, First Survey April 7th Last Survey October 25, 1921.

Req. Book. on the S/S "BIRKENHEAD", Hull No. 166. (Number of Visits 46)

Master Built at Oakland, Cal. By whom built Moore Shipbuilding Co. Tons (Gross) Net

Engines made at Hamilton, Ohio. By whom made Hooven, Owens Rentschler Co. When built 1921

Boilers made at Oakland, Cal. By whom made Moore Shipbuilding Co. when made 1921

Registered Horse Power Owners Vacuum Oil Company Port belonging to New York

Nom. Horse Power as per Section 28 680 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines

No. of Cylinders No. of Cranks

Dia. of Cylinders Length of Stroke Revs. per minute 75 Dia. of Screw shaft as per rule 15.75 Material of Steel as fitted 17 screw shaft

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 Yes 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 5'-8"

Dia. of Tunnel shaft as fitted 14.72 Dia. of Crank shaft journals as fitted Dia. of Crank pin Size of Crank webs Dia. of thrust shaft under collars 16 Dia. of screw 18' 0" Pitch of Screw 17.5 No. of Blades 4 State whether moceable Yes Total surface 100

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

No. of Bilge pumps 3 2 Diameter of ditto 5 Stroke 24 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps 7x6x10 12x8 1/2 x 12 No. and size of Suctions connected to both Bilge and Donkey pumps and Boiler In Engine Room 5-3 1/2 In Holds, &c. F.P.1-3 1/2 A.P.1-3 P.Room 2-3 1/2

No. of Bilge Injections 1 sizes 12 Connected to condensers or to circulating pump Yes 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 suction on Engine room bulkheads always accessible

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 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

Is the Screw Shaft Tunnel watertight Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record)

Manufacturers of Steel Luken Steel Co.

Total Heating Surface of Boilers 9900 Is Forced Draft fitted Yes No. and Description of Boilers 3 Scotch Marine

Working Pressure 220 Tested by hydraulic pressure to 330 Date of test 15-4-21 No. of Certificate 174 A.W.L.

Can each boiler be worked separately Yes Area of fire grate in each boiler Oil Burner No. and Description of Safety Valves to each boiler 2 spring-loaded Area of each valve 9.6 Pressure to which they are adjusted 220 Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 24" Mean dia. of boilers 15 3/16 Length 12' 0" Material of shell plates Steel

Thickness 1 1/16 Range of tensile strength 60000 71600 Are the shell plates welded or flanged Descrip. of riveting: cir. seams L.D.R. long. seams T.R.D.B.S. Diameter of rivet holes in long. seams 1 5/8 Pitch of rivets 9 1/2 Lap of plates or width of butt straps 22 1/2

Per centages of strength of longitudinal joint plate 93.7 Working pressure of shell by rules 238 Size of manhole in shell 12x16

Size of compensating ring No. and Description of Furnaces in each boiler 3 Morrison Material Steel Outside diameter 48 1/8

Length of plain part top 11 1/16 crown 11 1/16 bottom 7/16 Description of longitudinal joint Weld No. of strengthening rings

Working pressure of furnace by the rules 235 Combustion chamber plates: Material Steel Thickness: Sides 3/4 Back 3/4 Top 3/4 Bottom 1

Pitch of stays to ditto: Sides 6 1/2 x 8 Back 8 1/2 x 6 7/8 Top 8 x 6 1/2 If stays are fitted with nuts or riveted heads riveted Working pressure by rules 252

Material of stays Steel Area at smallest part 1.75 Area supported by each stay 56.72 Working pressure by rules 278 End plates in steam space: Material Steel Thickness 1 5/16 Pitch of stays 18 How are stays secured D.Nuts. Working pressure by rules 238 Material of stays Steel

Area at smallest part 10.32 Area supported by each stay 324 Working pressure by rules 330 Material of Front plates at bottom Steel

Thickness 7/8 Material of Lower back plate Steel Thickness 7/8 Greatest pitch of stays 16 Working pressure of plate by rules 260

Diameter of tubes 3 Pitch of tubes 4 1/8 Material of tube plates Steel thickness: Front 7/8 Back 7/8 Mean pitch of stays 10.3

Pitch across wide water spaces 13 Working pressures by rules 315 Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 11 x 1/2 Length as per rule 34 Distance apart 8 Number and pitch of stays in each 4 at 6 1/2

Working pressure by rules 290 Steam dome: description of joint to shell % of strength of joint

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

Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed

SUPERHEATER.

Type Date of Approval of Plan

Tested by Hydraulic Pressure to

Date of Test Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Diameter of Safety Valve Pressure to which each is adjusted Is Easing Gear fitted

IS A DONKEY BOILER FITTED? No

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— 1 set of top end brasses with bolts and nuts. 1 set of bottom end brasses with bolts and nuts. Set of main bearing parts with bolts and nuts. 1 set of coupling bolts and nuts. 1 set of rings for H.P. I.P. and L.P. pistons. 1 set of valves for air and bilge pumps H.P. and I.P. valve spindles complete. 1 link block and brasses. Air pump rod and bucket. Piston and nut. 1 crank shaft section. Valve chest and cylinder cover studs. 1 eccentric strap. Piston follower studs. Relief valve springs. Assorted nuts, bolts, and iron, etc. Spare Tail shaft.

The foregoing is a correct description,

Wm. Shephard & Co. Manufacturer.

Dates of Survey while building: During progress of work in shops: Dec. 3, 7, 20, 24. Jan. 6, 17, 31. Feb. 18. Mar. 1, 14, 19, 30. Apr. 6, 7, 15, 20. May 9, 12, 19, 23, 27, 31. June 2, 6, 14, 22, 27. July 5, 9, 11, 13, 22. Aug. 10, 13, 22, 29. During erection on board vessel: Sept. 12, 21, 26. Oct. 1, 7, 11, 18, 24, 25. Total No. of visits: 46

Is the approved plan of main boiler forwarded herewith? Yes

Dates of Examination of principal parts: Cylinders - Slides See Covers Engine Pistons Report Rods. Connecting rods - Crank shaft - Thrust shaft June 27 Tunnel shafts - Screw shaft June 27 Propeller June 27. Stern tube May 19 Steam pipes tested Aug. 24 Engine and boiler seatings Aug. 13 Engines holding down bolts Oct. 11. Completion of pumping arrangements Oct. 7 Boilers fixed Oct. 7 Engines tried under steam Oct. 24. Completion of fitting sea connections June 22 Stern tube July 5 Screw shaft and propeller July 9. Main boiler safety valves adjusted Oct. 11 Thickness of adjusting washers Locknuts. Material of Crank shaft - Identification Mark on Do. - Material of Thrust shaft Steel Identification Mark on Do. Material of Tunnel shafts - Identification Marks on Do. - Material of Screw shafts Steel Identification Marks on Do. Material of Steam Pipes Steel Test pressure 660. 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? Yes. If so, state name of vessel s/s "BARGOYLE", Rpt. No. 3462.

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

The machinery of this vessel was constructed under special survey of materials tested to Rule Requirements and the workmanship found good throughout. On completion the machinery was tried under working conditions with satisfactory results, and in the opinion of the undersigned, this machinery is eligible to be classed in the Register Book with the Records of L.M.C. 10-21. Fitted for Oil Fuel 10-21. F.P. above 150° F. "Electric Light".

DAMAGE to cargo pump. See Damage report, copy of which is hereto attached.

Water chamber of starboard cargo pump found slightly cracked while testing pipe lines, this has now been efficiently repaired as a temporary measure and the Owners state that a new water end will be fitted on vessel's arrival on the East Coast.

It is submitted that this vessel is eligible for THE RECORD. F.L.M.C. - 10.21. F.P. above 150° F.

Fitted for Oil Fuel, 10.21, F.P. above 150° F.

Subject - Permanent repairs being effected to starboard cargo pump on arrival on East Coast of America. 2/5. Much for (cont. 218.00) plus 9/132.135 Expense, to be credited Cleveland Office, their Eng. Rpt. No. 161.

The amount of Entry Fee ... \$ 30.00 When applied for, Nov. 2, 1921. Special ... \$ 545.00 When received, 27.1.22. Donkey Boiler Fee ... \$ 132.35 Travelling Expenses (if any) ... \$ 10.85

F.L. Archbold & J.B. Blackwell Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute New York NOV - 9 1921

Assigned + L.M.C. - 10.21 subject

Certificate (if required) to be sent to

The Surveyors are requested not to write on or below the space for Committee's Minute.

ESTIMATED WHAT TIME 14/12/21 New cent 22.8.22



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Rpt. 4. Date of writing No. in Reg. Book. Master Engines Boilers Registered Nom. Horses ENGINE Dia. of Cyl Is the screw in the prop between the liners are Dia. of Tum collars No. of Fee No. of Bilg No. of Don In Engine No. of Bilg Are all the b Are all com Are they fix Are they eac What pipes Are all Pip Are the Bil Is the Sere BOILER Total Heat Working Can each bo each boiler Smallest dist Thickness long. seams Per centages Size of comp Length of pl Working pre Pitch of stay Material of Material Area at sm Thickness Diameter of Pitch across thickness of Working pr Diameter Pitch of rive SUPERH Date of Test Diameter of