

REPORT ON MACHINERY.

No. 20

REC'D NEW YORK *Nov. 10, 1916* Received at London Office *NOV. 20, 1916*

Date of writing Report *18. 10. 1916* When handed in at Local Office *23. 10. 1916* Port of *DETROIT, MICH.*

No. in Survey held at *DETROIT AND ECORSE.* Date, First Survey *April 26* Last Survey *Oct. 16 1916*
Reg. Book. on the *STEEL SINGLE SCREW STEAMER "P.L.M. No. 5"* (Number of Visits *29*) Tons *Gross 2639*
Net 1325

Master Built at *ECORSE, MICH.* By whom built *GREAT LAKES ENGINEERING WORKS.* When built *1916*

Engines made at *DETROIT, MICH.* By whom made *GREAT LAKES ENGINEERING WORKS.* when made *1916*

Boilers made at *TOLEDO, OHIO.* By whom made *THE MARINE BOILER WORKS COY.* when made *1916*

Registered Horse Power Owners *ORIENTAL STEAM NAV'G CO* Port belonging to *MONTVIDEO.*

Nom. Horse Power as per Section 28 *284* Is Refrigerating Machinery fitted for cargo purposes *No.* Is Electric Light fitted *YES.*

ENGINES, &c.—Description of Engines *TRIPLE EXPANSION* No. of Cylinders *3* No. of Cranks *3*

No. of Cylinders *21-34 1/2-54* Length of Stroke *42* Revs. per minute *1160* Dia. of Screw shaft *12 1/2* Material of screw shaft *STEEL*

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 are the joints

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 *51"*

Dia. of Tunnel shaft *10.712* Dia. of Crank shaft journals *11.248* Dia. of Crank pin *1 1/4* Size of Crank webs *2x8* Dia. of thrust shaft under

collars *1 1/4* Dia. of screw *13-6* Pitch of Screw *14-6* No. of Blades *4* State whether moveable *YES.* Total surface *64.4 sq ft*

No. of Feed pumps *2* Diameter of ditto *10x16x12* Stroke *10x5x12* Can one be overhauled while the other is at work *YES.*

No. of Bilge pumps *2* Diameter of ditto *3 1/2* Stroke *12* Can one be overhauled while the other is at work *YES.*

No. of Donkey Engines *3* Sizes of Pumps *10x12x12* No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *2-4, 1-3, 4x3 1/2x5* In Holds, &c. *No. 1 HOLD 2-3" No. 2 HOLD 2-3"*

No. of Bilge Injections / sizes *6"* Connected to condenser, or to circulating pump *PUMP.* Is a separate Donkey Suction fitted in Engine room & size *YES 3"*

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 *MAIN INT. 2 BALL SEACOCKS ON TANK TOP.* 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.*

Dates of examination of completion of fitting of Sea Connections *23. 8. 16* of Stern Tube *23. 8. 16* Screw shaft and Propeller *23. 8. 16*

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

OILERS, &c.—(Letter for record *S.*) Manufacturers of Steel *WORTH BROTHERS COMPANY.*

Total Heating Surface of Boilers *4160 sq ft* Is Forced Draft fitted *YES.* No. and Description of Boilers *2 SINGLE ENDED*

Working Pressure *175 LBS.* Tested by hydraulic pressure to *263 LBS.* Date of test *8. 9. 16* No. of Certificate *18*

Can each boiler be worked separately *YES.* Area of fire grate in each boiler *52 sq ft* No. and Description of Safety Valves to

each boiler *2- SPRING LOADED* Area of each valve *9.621 sq in* Pressure to which they are adjusted *175 LBS.* Are they fitted with easing gear *YES.*

Smallest distance between boilers or uptakes and bunkers or woodwork *6"* Mean dia. of boilers *13-6"* Length *11-0"* Material of shell plates *S.*

Thickness *1 1/2"* Range of tensile strength *28-32* Are the shell plates welded or flanged *No.* Descrip. of riveting: cir. seams *S.R.L.*

long. seams *T.R.D.B.S.* Diameter of rivet holes in long. seams *1 1/2"* Pitch of rivets *4 1/4"* Lap of plates or width of butt straps *1 1/2-17 1/2"*

Per centages of strength of longitudinal joint *84.03* Working pressure of shell by rules *180 LBS.* Size of manhole in shell *11"x15"*

Size of compensating ring *22"x33"* No. and Description of Furnaces in each boiler *3- CORRUG 2* Material *S.* Outside diameter *44 1/2"*

Length of plain part *top 7 1/2"* Thickness of plates *bottom 3 1/2"* Description of longitudinal joint *WELD.* No. of strengthening rings *✓*

Working pressure of furnace by the rules *185* Combustion chamber plates: Material *S.* Thickness: Sides *5/8"* Back *5/8"* Top *5/8"* Bottom *5/8"*

Pitch of stays to ditto: Sides *7 1/2"x7 1/2"* Back *7 1/2"x7 1/2"* Top *8"x7 1/2"* If stays are fitted with nuts or riveted heads *R.H.* Working pressure by rules *177*

Material of stays *S.* Diameter at smallest part *1.259 sq in* Area supported by each stay *56.15 sq in* Working pressure by rules *179* End plates in steam space:

Material *S.* Thickness *1 1/4"* Pitch of stays *16"x16"* How are stays secured *D.N.* Working pressure by rules *180* Material of stays *S.*

Diameter at smallest part *2 1/2"* Area supported by each stay *256 sq in* Working pressure by rules *219* Material of Front plates at bottom *S.*

Thickness *3/4"* Material of Lower back plate *S.* Thickness *5/8"* Greatest pitch of stays *11 1/2"x14 1/2"* Working pressure of plate by rules *190*

Diameter of tubes *2 1/4"* Pitch of tubes *3 1/2"x3 1/2"* Material of tube plates *S.* Thickness: Front *3/4"* Back *5/8"* Mean pitch of stays *7 1/2"*

Pitch across wide water spaces *13 1/4"x14 1/2"* Working pressures by rules *178* Girders to Chamber tops: Material *S.* Depth and

thickness of girder at centre *8 1/2"-15 1/2"* Length as per rule *3/5* Distance apart *8"* Number and pitch of stays in each *3-7 1/2"*

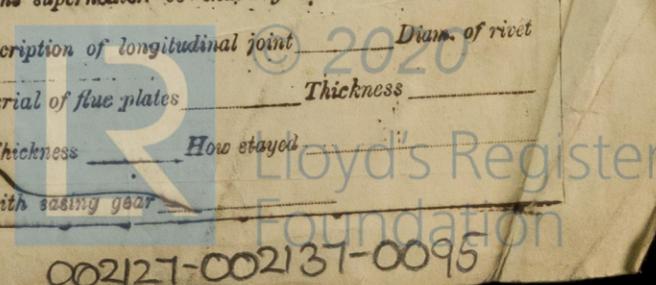
Working pressure by rules *202* Superheater or Steam chest; how connected to boiler *Can the superheater be shut off and the boiler worked*

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*



002127-002137-0095

IS A DONKEY BOILER FITTED? *No.*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— *Two wedges and studs for connecting rod top end; two connecting rod bottom end bolts and nuts, two main bearing bolts and nuts, one set of coupling bolts, one set of feed and bilge pump valves, one set of piston springs, a quantity of assorted bolts and nuts, sizes of various sizes.*

The foregoing is a correct description.

H. S. Smith
Heintz

Manufacturer.

Dates of Survey while building: During progress of work in shops -- *April 16, May 16, June 1, 4, 10, 13, 16, 26, July 6, 7, 12, 20, 21, Aug 2, 8, 9, 14, 15;*
During erection on board vessel -- *Augt. 17, 23, 28, Sept. 2, 13, 18, 25, Oct. 5, 6, 16.*
Total No. of visits *29.*

Is the approved plan of main boiler forwarded herewith *YES.*

" " " donkey " " "

Dates of Examination of principal parts—Cylinders *13.6.16* Slides *12.7.16* Covers *13.6.16* Pistons *12.7.16* Rods *12.7.16*
Connecting rods *6.5.16* Crank shaft *12.7.16* Thrust shaft *21.7.16* Tunnel shafts Screw shaft *15.8.16* Propeller *15.8.16*
Stern tube *15.8.16* Steam pipes tested *6.10.16* Engine and boiler seatings *23.9.16* Engines holding down bolts *25.9.16*
Completion of pumping arrangements *16.10.16* Boilers fixed *25.9.16* Engines tried under steam *16.10.16*
Main boiler safety valves adjusted *16.10.16* Thickness of adjusting washers *STD. BR. 1" FOR 1 1/2" AFT. P.B. 1 1/2" FOR A 1 1/2"*
Material of Crank shaft *S.* Identification Mark on Do. *T.G.D. 1916* Material of Thrust shaft *S.* Identification Mark on Do. *T.G.D. 1916*
Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts *S.* Identification Marks on Do. *T.G.D. 1916*
Material of Steam Pipes *Solid drawn steel.* Test pressure *525 LBS. HYDRAULIC.*

Is an insulation fitted for burning oil fuel *No.* Is the flash point of the oil to be used over 150°F.

Have the requirements of Section 49 of the Rules been complied with

Is this machinery duplicate of a previous case *YES.* If so, state name of vessel *S/S "P.L.M. No 4"*

General Remarks (State quality of workmanship, opinions as to class, &c. *The engines and boilers of this vessel have been constructed under special survey in accordance with the Rules. The materials and workmanship are sound and good. The boilers tested by hydraulic pressure and with the engines secured on board, tested under steam, they are now in good order and safe working condition and respectfully submitted as being eligible in my opinion to be classed with the notation of *L.M.C 10.16* in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD + L.M.C 10.16.

J.W.D.
5/12/16.

The amount of Entry Fee ... £ 10.00
Special ... £ 171.00
Donkey Boiler Fee ... £ 11.60
Travelling Expenses (if any) £ 11.60

When applied for.

Oct. 21 1916

When received.

25/11/16

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

Committee's Minute *New York NOV 16 1916*

Assigned *+ L.M.C 10, 16*



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MACHINERY CERTIFICATE
EXPIRES 28.11.16

Certificate (if required) to be sent to - DETROIT, Mich.