

REPORT ON MACHINERY.

No. 2438

Received at London Office NOV. 2 1916

Date of writing Report 1st Sept 1916 When handed in at Local Office 1st Sept 1916 Port of Philadelphia
 Date, First Survey 8th Sept 1916 Last Survey 30th Sept 1916
 (Number of Visits 74)

Survey held at Philadelphia Date, First Survey 8th Sept 1916 Last Survey 30th Sept 1916
 on the S.S. "Standard Arrow" Tons 15.47 Gross 15.69 Net

Master Philadelphia Built at Philadelphia By whom built New York P. B. Co. (No 167) When built 1916
 Engines made at Philadelphia By whom made New York P. B. Co. when made 1916
 Boilers made at Do By whom made Do when made 1916

Registered Horse Power Standard Oil Co. Port belonging to New York
 Nom. Horse Power as per Section 28 568 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Quadruple Expansion No. of Cylinders 4 No. of Cranks 4
 Dia. of Cylinders 34 35 51 75 Length of Stroke 51 Revs. per minute 80 Dia. of Screw shaft 15.47 Material of iron
 as fitted 15.75 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
 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 Yes If two
 liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 5' 4"

Dia. of Tunnel shaft 13.48 as per rule 14.15 Dia. of Crank shaft journals 15 as per rule 15 Dia. of Crank pin 15 Size of Crank webs 10 1/2 Dia. of thrust shaft under
 collars 14 3/4 Dia. of screw 19.6 Pitch of Screw 15-0 No. of Blades 4 State whether moveable Yes Total surface 113.5 sq ft

No. of Feed pumps 2 Diameter of ditto 2 x 8 Stroke 24 Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 1 1/2 Stroke 24 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 8 Sizes of Pumps See separate sheet No. and size of Suctions connected to both Bilge and Donkey pumps
 in Engine Room & Blr Room 6-3 1/2" & 1-3 1/2" spec. In Holds, &c. 2-3 1/2" in oil fuel tank : 2-3 1/2" in
total hold : 1-3" in after Pump Room

No. of Bilge Injections 1 sizes 11" Connected to condenser, 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 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 both
 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 none How are they protected Yes
 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 none Is it fitted with a watertight door Yes worked from Yes
 OILERS, &c.—(Letter for record (+)) Manufacturers of Steel Worth Bros

Total Heating Surface of Boilers 7804 sq ft Is Forced Draft fitted Yes No. and Description of Boilers 3 Single Ended
 Working Pressure 220 lbs Tested by hydraulic pressure to 330 lbs Date of test 29.1.16 No. of Certificate 85

Can each boiler be worked separately Yes Area of fire grate in each boiler 59 sq ft No. and Description of Safety Valves to
 each boiler double spring loaded Area of each valve 8.29 sq in Pressure to which they are adjusted 220 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 4' 0" Mean dia. of boilers 14' 8" Length 11' 6" Material of shell plates steel
 Thickness 1 9/16" Range of tensile strength 28/32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams D. Riv.
 long. seams T.R.O.B.S. Diameter of rivet holes in long. seams 1 9/16" Pitch of rivets 9 1/16" Lap of plates or width of butt straps 22 3/4"

Per centages of strength of longitudinal joint 87.9 Working pressure of shell by rules 240 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring 3' 0 1/2" x 2' 8 1/2" No. and Description of Furnaces in each boiler 3 corrugated Material steel Outside diameter 3' 11 1/16"

Length of plain part 21" Thickness of plates 32" Description of longitudinal joint weld No. of strengthening rings Yes
 Working pressure of furnace by the rules 226 Combustion chamber plates: Material steel Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 1"

Pitch of stays to ditto: Sides 7" x 7 1/4" Back 7" x 7" Top 7 3/8" x 7 1/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 252
 Material of stays iron Area at smallest part 1.99 Area supported by each stay 53.4 Working pressure by rules 280 End plates in steam space:
 Material steel Thickness: 1 3/16" Pitch of stays 16 1/2" x 15 1/2" How are stays secured D.N. & W. Working pressure by rules 246 Material of stays steel

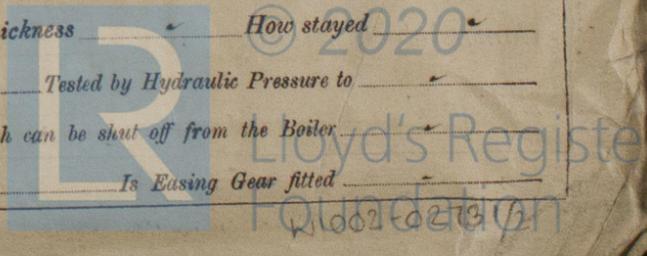
Area at smallest part 6.49 Area supported by each stay 255.75 Working pressure by rules 263 Material of Front plates at bottom steel
 Thickness 1 1/16" Material of Lower back plate steel Thickness 1 3/32" Greatest pitch of stays 14 1/4" x 7" Working pressure of plate by rules 220
 Diameter of tubes 2 1/2" Pitch of tubes 3 5/8" x 3 1/2" Material of tube plates steel Thickness: Front 1 1/16" Back 1 3/16" Mean pitch of stays 8 7/8"

Pitch across wide water spaces 12 3/4" Working pressures by rules 248 Girders to Chamber tops: Material steel Depth and
 thickness of girder at centre 9" x 20 1/2" Length as per rule 2' 11" Distance apart 7 1/4" Number and pitch of stays in each 4 @ 7 1/4"

Working pressure by rules 268 Steam dome: description of joint to shell Yes % of strength of joint Yes
 Diameter Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet holes Yes

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

SUPERHEATER. Type None Date of Approval of Plan Yes Tested by Hydraulic Pressure to Yes
 Date of Test Yes Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler Yes
 Diameter of Safety Valve Yes Pressure to which each is adjusted Yes Is Easing Gear fitted Yes



IS A DONKEY BOILER FITTED?

no

If so, is a report now forwarded?

yes

SPARE GEAR. State the articles supplied:— 2 connecting rod top end bolts & nuts: 2 connecting rod bottom end bolts & nuts: 2 main bearing bolts: 1 set of coupling bolts: 1 set of bilge pump valves: a quantity of assorted bolts & nuts: iron of various sizes: spare tail shaft: 1 section of Crank shaft: 2 spare propeller blades: I.P. & L.P. spare piston rods: H.P. & L.P. spare valve spindles etc.

The foregoing is a correct description,

New York Shipbuilding Co.

CAMDEN N.J.

Philip M. Young Manufacturer.

1915
Dates of Survey while building
During progress of work in shops: Aug 8. 12. 16. Sept 23. 27. Oct 16. 19. 29. Nov 5. 9. 16. 23. Dec 2. 7. 9. 17. 22. 29 up to June 1. 1916
During erection on board vessel: June 5. 9. 12. 28. July 6. 14. 17. 20. 21. 25. Aug 1. 4. 7. 17. 28. 30.
Total No. of visits: 74

Is the approved plan of main boiler forwarded herewith? yes

Is the approved plan of main boiler forwarded herewith? donkey? none

Dates of Examination of principal parts—Cylinders 21. 2. 16 Slides 28. 3. 16 Covers 28. 3. 16 Pistons 28. 3. 16 Rods 28. 3. 16
Connecting rods 21. 1. 16 Crank shaft 19. 1. 16 Thrust shaft 3. 3. 16 Tunnel shafts ✓ Screw shaft 22. 3. 16 Propeller 3. 3. 16
Stern tube 22. 3. 16 Steam pipes tested 1. 6. 16 Engine and boiler seatings 19. 4. 16 Engines holding down bolts 5. 6. 16
Completion of pumping arrangements 20. 7. 16 Boilers fixed 20. 7. 16 Engines tried under steam 28. 8. 16
Completion of fitting sea connections 19. 4. 16 Stern tube 19. 4. 16 Screw shaft and propeller 19. 4. 16
Main boiler safety valves adjusted 21. 7. 16 Thickness of adjusting washers lock nuts fitted
Material of Crank shaft Steel Identification Mark on Do. 1500 Material of Thrust shaft Steel Identification Mark on Do. 1500
Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts Iron Identification Marks on Do. 1500
Material of Steam Pipes Steel Test pressure 660 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.)

The machinery of this vessel has been built under special survey: the material and workmanship being good, and proved satisfactory on steam trial

It is submitted that this vessel be eligible for a record of + L.M.C. 8. 16 in the Register Book.

Fitted for oil fuel 8. 16 F.P. above 150°F

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 8. 16 F.D.
Fitted for oil fuel 8. 16 F.P. above 150°F.

J.W.D. 15/11/16

A. T. Howard Engineer Surveyor to Lloyd's Register of Shipping.

The amount of Entry Fee ... \$ 15.00:
Special ... \$ 242.00:
Donkey Boiler Fee ... £ :
Travelling Expenses (if any) \$ 10.00:
When applied for, 19.
When received, 21/11/16

Committee's Minute New York OCT 19 1916

Assigned, + L.M.C. 8. 16 ELEC. LIGHT
Fitted for oil fuel 8. 16 F.P. above 150°F

MACHINERY CERTIFICATE
DATED 2/11/16



A	43	lights each of	40W	candle power requiring a total current of	15.4	Amperes
A'	39	lights each of	40W	candle power requiring a total current of	14.0	Amperes
		lights each of	40W	candle power requiring a total current of	12.2	Amperes
					9.7	

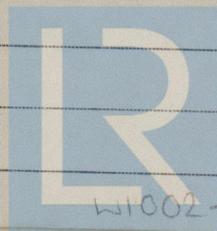
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THU. 2 - NOV. 1916

Port of *Philadelphia* (Continuation of Report No. *2438* dated *1st Sept 1916* on the

S.S. "Standard Arrow" :- Darky Engines

16" x 10" x 14" Duplex : 12 x 8 x 12 Duplex : 7 1/2" x 6" x 10" Duplex : 6" x 4" x 6" 2
7 1/2" x 6" x 10" Duplex : 2 @ 6" x 4" x 6" : Combined air & circal. 12" x 14" x 14" x 12"



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Lloyd's Register
Foundation

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances *Yes* Are all joints in accessible

positions, none being made in bunkers, cargo spaces, or spaces which may at any time be used for carrying cargo, stores, or baggage *Yes*