

# REPORT ON MACHINERY.

No. 4318

REC'D NEW YORK JAN 27 1922

Received at London Office

Date of writing Report 23 January 1922 When handed in at Local Office 24 January 1922 Port of Philadelphia

No. in Survey held at Chester Pa Date, First Survey 12 February 21 Last Survey 23 January 1922

Reg. Book. on the New S.S. "DELAWARE SUN" Tons Gross 8964.44 Net 5614

Master Built at Chester Pa By whom built Sun Shipbuilding Co When built 1922

Engines made at Chester Pa By whom made Sun Shipbuilding Co when made 1922

Boilers made at Chester Pa By whom made Sun Shipbuilding Co when made 1921

Registered Horse Power Owners Sun company Inc Port belonging to Philadelphia

Nom. Horse Power as per Section 28 625 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

Dia. of Cylinders 24 x 45 1/2 x 46 Length of Stroke 51 Revs. per minute 72 Dia. of Screw shaft as per rule 15.83 as fitted 16 1/8 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 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 6-0

Dia. of Tunnel shaft as per rule 14.42 as fitted 14.5 Dia. of Crank shaft journals as per rule 15-14 as fitted 15-25 Dia. of Crank pin 15 1/2 Size of Crank webs 10 1/4 x 56 Dia. of thrust shaft under

collars 15 1/4 Dia. of screw 18.9 Pitch of Screw 1 1/2 No. of Blades 4 State whether moveable Yes Total surface 96 sq

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

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

No. of Donkey Engines over Sizes of Pumps over No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 5 @ 3 1/2 1 @ 5 In Holds, &c. Forehold 1 @ 3 Main pump room

2 @ 2 1/2 In pump room 1 @ 3

No. of Bilge Injections 12 sizes 12 Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size Yes 5

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 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 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

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

BOILERS, &c.—(Letter for record Manufacturers of Steel Lukens Steel & Iron Co

Total Heating Surface of Boilers 9198 sq Is Forced Draft fitted Yes No. and Description of Boilers 3 S.E. SCOTCH

Working Pressure 210 Tested by hydraulic pressure to 330 Date of test 31-3-21 No. of Certificate 517

Can each boiler be worked separately Yes Area of fire grate in each boiler 65.6 sq No. and Description of Safety Valves to

each boiler 3 1/2 Swin Area of each valve 9.62 sq Pressure to which they are adjusted 210 Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 20 Mean dia. of boilers 15-11 3/4 Length 2-0 1/4 Material of shell plates Steel

Thickness 1/4 Range of tensile strength 60,000 to 70,000 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams DRL

long. seams TRDBS Diameter of rivet holes in long. seams 1 1/16 Pitch of rivets 9 7/16 Lap of plates or width of butt straps 25 3/4

Per centages of strength of longitudinal joint rivets 95.5% plate 83% Working pressure of shell by rules 236 Size of manhole in shell 12 x 16

Size of compensating ring flanged No. and Description of Furnaces in each boiler 3 Ironious Material Steel Outside diameter 52 3/4

Length of plain part top bottom Thickness of plates crown 23/32 Description of longitudinal joint Weld No. of strengthening rings

Working pressure of furnace by the rules 229 Combustion chamber plates: Material Steel Thickness: Sides 1/16 Back 3/4 Top 1/16 Bottom 1 1/16

Pitch of stays to ditto: Sides 8 1/2 x 6 1/2 Back 8 x 8 Top 8 1/2 x 8 1/2 If stays are fitted with nuts or riveted heads Both Working pressure by rules 223

Material of stays W.1 Area at smallest part 1.997 Area supported by each stay 68.046 Working pressure by rules 220 End plates in steam space:

Material Steel Thickness 1 3/16 Pitch of stays 16 5/8 x 16 How are stays secured D NUTS Working pressure by rules 233 Material of stays Steel

Area at smallest part 7.0656 Area supported by each stay 270 Working pressure by rules 272 Material of Front plates at bottom Steel

Thickness 1 1/16 Material of Lower back plate Steel Thickness 1 1/32 Greatest pitch of stays 13 Working pressure of plate by rules 249

Diameter of tubes 2 1/2 Pitch of tubes 3 3/4 x 3 1/2 Material of tube plates Steel Thickness: Front 1 1/32 Back 2 1/32 Mean pitch of stays 9

Pitch across wide water spaces 13 Working pressures by rules 225 Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 11 x 2 Length as per rule 3-4 Distance apart 8 3/8 Number and pitch of stays in each 4 @ 8 1/8

Working pressure by rules 265 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 Is Easing Gear fitted

2m, 7, 10, T

Lloyd's Register Foundation

IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— 2 Connecting rod bolts & nuts for top and bottom end braces; 1 set of Coupling bolts; 2 Main bearing bolts; 1 set of feed and bilge pump valves; 1 set of piston rings & springs for each piston fitted; 1 Propeller blade; 12 follower bolts; 8 valve stem studs; 8 Piston rod studs; 1 Relief valve spring for each one fitted; 52 Condenser tubes & ferrules; 1 set of Crosshead braces; 1 set of Crank pin braces; a quantity of assorted bolts & nuts; Iron of various sizes

The foregoing is a correct description,

*Robert-Ann*

Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1921 Feb. 12, 24, Feb 4, 9, 16, 17, 22, 28, 30, 31, June 3, 6, 21, 29, July 22, 26, Aug 10, 18, 24, Sept 7, During erection on board vessel --- Oct 7, 11, 19, Nov 9, 16, 21, Dec 1, 7, 15, 20, 22, 27, 31, 1922 Jan 4, 6, 10, 11, 13, 13, 17, 18, 23, Total No. of visits 42

Is the approved plan of main boiler forwarded herewith

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Dates of Examination of principal parts—Cylinders 1-12-21 Slides 20-12-21 Covers 1-12-21 Pistons 20-12-21 Rods 20-12-21

Connecting rods 7-12-21 Crank shaft 22-11-21 Thrust shaft 1-12-21 Tunnel shafts 1-12-21 Screw shaft 1-12-21 Propeller 7-12-21

Stern tube 22-12-21 Steam pipes tested 10-1-22 Engine and boiler seatings 7-12-21 Engines holding down bolts 4-1-22

Completion of pumping arrangements 17-1-22 Boilers fixed 4-1-22 Engines tried under steam 17-1-22

Completion of fitting sea connections 27-12-21 Stern tube 31-12-21 Screw shaft and propeller 31-12-21

Main boiler safety valves adjusted 17-1-22 Thickness of adjusting washers *Lock nuts*

Material of Crank shaft *Steel* Identification Mark on Do. *AB 22* Material of Thrust shaft *Steel* Identification Mark on Do. *AB 38*

Material of Tunnel shafts *Steel* Identification Marks on Do. *F163 GD* Material of Screw shafts *Steel* Identification Marks on Do. *AB 22*

Material of Steam Pipes *Steel* Test pressure *740 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 Engines and boilers of this*)

*Vessel have been built under Special Survey and in accordance with the approved plans. Materials and workmanship are of good quality*

*The machinery of the vessel has been securely fitted on board and proved satisfactory under full steam trial*

*It is submitted that the vessel be eligible for a record of L.M.C. 1-22 and to have notation fitted for oil fuel 1-22 Flash point above 150°F in the Register Book*

Pumps 2 Feed pumps 15x10x24; Ballast 14x10 1/4 x 12; Two condensers 12x14x14x12; Main circulating

C. & H. Wheeler # 17013; Condensate C & H Wheeler # 16737; Evaporator 5 1/4 x 4 3/4 x 5; 2 Bilge 7 1/2 x 6 x 10

Fresh water 5 1/4 x 4 3/4 x 5; Sanitary 7 1/2 x 6 x 10; 2 Radiators; 2 Fuel oil 6 x 4 x 6; Cargo pump room

Cargo pumps 2-12 x 20 x 13 x 24 Bilge 6 x 4 x 6 Fuel pump room Bilge 6 x 4 x 6 Fuel oil transfer

7 1/2 x 6 x 10

It is submitted that this vessel is eligible for

THE RECORD. F.L.M.C. - 1.22. F.D. C.L.

Fitted for Oil Fuel, 1.22., F.P. above 150°F.

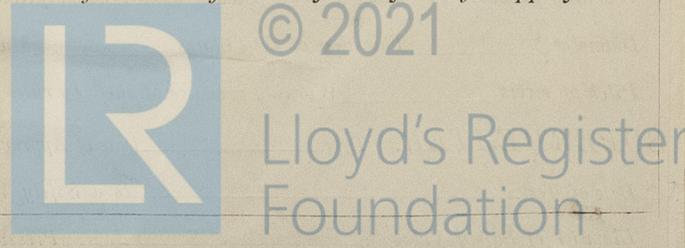
The amount of Entry Fee ... £ 30-00 : When applied for, Jan 24 1922 H9.K.

Special ... \$ 532-00 : Donkey Boiler Dec ... \$ 250-00 : When received, 22/3/22

Travelling Expenses (if any) \$ 30-00

Committee's Minute New York FEB - 7 1922

Assigned + L.M.C. - 1.22



Certificate (if required) to be sent to The Surveyors are requested not to write on or below the space for Committee's Minute.

CERTIFICATE WRITTEN 21/2/22