

Rpt. 4.

REPORT ON MACHINERY.

No. 4318

REC'D NEW YORK JAN 27 1922
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"
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 28 628 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 27" x 45 1/2" x 76" Length of Stroke 51 Revs. per minute 72 Dia. of Screw shaft as per rule 15.83 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 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 6'-0" ✓
Dia. of Tunnel shaft as per rule 14.42 ✓ Dia. of Crank shaft journals as per rule 15-14 ✓ 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 ft²
No. of Feed pumps 2 Diameter of ditto 10" Stroke 10" 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 2 1/2" In pump room 10 3" In Holds, &c. In hold 10 3" In main pump room
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 7) Manufacturers of Steel Lukens Steel & Iron Co
Total Heating Surface of Boilers 9198 ft² 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 ft² No. and Description of Safety Valves to
each boiler 3 1/2" Swin Area of each valve 9.62 ft² 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 1/4" Length 2-0 1/4" Material of shell plates Steel
Thickness 1 1/4" Range of tensile strength 60,000 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% 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 Horizontal Material Steel Outside diameter 52 3/4"
Length of plain part top Thickness of plates crown 23/32 Description of longitudinal joint Weld No. of strengthening rings
bottom Thickness of plates bottom 1/32
Working pressure of furnace by the rules 229 Combustion chamber plates: Material Steel Thickness: Sides 1 1/16" Back 3/4" Top 1 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 7/8 x 16 How are stays secured D. NUTS Working pressure by rules 233 Material of stays Steel
Area at smallest part 7.0686 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 7/32 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 268 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
Tested by Hydraulic Pressure to
SUPERHEATER. Type Date of Approval of Plan
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

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 H. H. H.

Manufacturer.

Dates of Survey while building { During progress of work in shops - - 1921 Feb. 12, 14, 16, 17, 22, 28, 30, 31, June 3, 6, 21, 29, July 22, 26, Aug 10, 18, 24, Sept 7, 1922 Jan 4, 6, 10, 11, 12, 13, 17, 18, 23, 24
During erection on board vessel - - - 1921 Feb. 7, 11, 19, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1922 Jan 4, 6, 10, 11, 12, 13, 17, 18, 23, 24
Total No. of visits 42

Is the approved plan of main boiler forwarded herewith

" " " donkey " " "

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. E163 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 LMC 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 14x10x12; 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 2-12x20x13x24 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 Fee ... \$ 250-00 :
Travelling Expenses (if any) \$ 30-00 : When received, 22/3/22

J. Adamson
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

New York FEB - 7 1922

+LMC-1.22

CERTIFICATE WRITTEN 21/2/22



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