

REPORT ON MACHINERY.

No. 4550

WED. MAR. 28 1923

Date of writing Report 6th March 1923 When handed in at Local Office 8th March 1923 Port of PHILADELPHIANo. in Survey held at Chester Pa Date, First Survey 3rd Jan, 1921 Last Survey 1st March 1923Reg. Book. on the S.S. "PENNSYLVANIA SUN" (Number of Visits 66)Master Built at Chester Pa By whom built Sun Shipbuilding Co Tons Gross 8862Engines made at Chester Pa By whom made Sun Shipbuilding Co when made 1923 Net 5535Boilers made at Chester Pa By whom made Sun Shipbuilding Co when made 1923Registered Horse Power Owners Sun Oil Co, Inc. Port belonging to PhiladelphiaNom. Horse Power as per Section 28 819 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 26" 38 1/4", 56", 82" Length of Stroke 54" Revs. per minute 79 Dia. of Screw shaft as per rule 16.049 Material of 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 14.534 Dia. of Crank shaft journals as per rule 15.26 Dia. of Crank pin 16 1/4" Size of Crank webs 2'-2" x 11 1/4" Dia. of thrust shaft under
collars 15 3/4" Dia. of screw 19.2" Pitch of Screw 17.9" No. of Blades 4 State whether moceable Yes Total surface 101.7
No. of Feed pumps 2 Diameter of ditto over Stroke over 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 4 Fire Room 4 @ 3 1/2", 7 @ 3", 1 @ 5" In Holds, &c. Fore hold, 2 @ 3" Fore pump room 1 @ 3 1/2"
Cargo pump room, 2 @ 2 1/2"
No. of Bilge Injections 1 sizes 10" Connected to condenser, or to circulating pump pump 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 about
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 Yes Is it fitted with a watertight door Yes worked from Yes

BOILERS, &c.—(Letter for record Yes) Manufacturers of Steel Lukens Steel & Iron Co
Total Heating Surface of Boilers 12264 Is Forced Draft fitted Yes No. and Description of Boilers 4 S.E. SCOTCH
Working Pressure 220 Tested by hydraulic pressure to 330 Date of test 17-3-21 No. of Certificate 515
Can each boiler be worked separately Yes Area of fire grate in each boiler 65.6 No. and Description of Safety Valves to
each boiler 3 1/2 Levin Area of each valve 9.62 Pressure to which they are adjusted 220 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 12.0 7/16" Material of shell plates Steel
Thickness 1 3/4" Range of tensile strength 26,750 - 31,250 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 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 Monison Material Steel Outside diameter 52 3/16"
Length of plain part top 23 1/2" Thickness of plates bottom 32" Description of longitudinal joint Weld No. of strengthening rings Yes
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. I. Area at smallest part 1.994 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 7.0686 Area supported by each stay 240 Working pressure by rules 242 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 1/2"
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 Yes 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?

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SPARE GEAR.

State the articles supplied:—

4 Connecting rod top end bolts & nuts, 2 bottom end bolts & nuts, 4 main bearing bolts, 1 set of coupling bolts, 1 set of feed & bilge pump valves, 1 propeller shaft, 1 set of top end brasses, 1 set of bottom end brasses, 1 propeller blade, 24 follower bolts, 1 set of piston rings & springs for each piston fitted, 8 valve stem studs, 8 piston rod studs, 1 relief valve spring for each one fitted, 50 condenser tubes & 100 ferrules, a quantity of assorted bolts & nuts, iron of various sizes.

The foregoing is a correct description,

John J. New. Prov.

Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1921: Jan 31, Feb 7, 15, 17, 24, 28, Mar 4, 9, 10, 16, 17, 30, Apr 2, 7, 20, 29, May 4, 6, 16, 20, 23, 31, June 3, 6, 14, 17, 21, 29, July 6, 14, 22, 26, Aug 5, 10, 11, 15, 18, 24, 30, Sep 7, 23, 30, Oct 3, 5.
During erection on board vessel --- 1921: Oct 11, 19, 27, Nov 2, 10, 14, 21, 30, Dec 8, 14, 16, 1922: Jan 18, 24, Feb 3, 16, Mar 30, Apr 19, 1923: Jan 10, Feb 5, 8, 21, 25, 28, Mar 1.
Total No. of visits 66.

Is the approved plan of main boiler forwarded herewith

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Dates of Examination of principal parts—Cylinders 3-10-21. Slides 7-9-21. Covers 3-10-21. Pistons 7-9-21. Rods 6-7-21. Connecting rods 6-7-21. Crank shaft 21-5-21. Thrust shaft 26-9-21. Tunnel shafts 26-9-21. Screw shaft 26-9-21. Propeller 26-9-21. Stern tube 17-5-21. Steam pipes tested 21-2-23. Engine and boiler seatings 30-3-22. Engines holding down bolts 30-3-22. Completion of pumping arrangements 25-2-23. Boilers fixed 8-2-23. Engines tried under steam 28-2-23. Completion of fitting sea connections 10-1-23. Stern tube 14-11-21. Screw shaft and propeller 8-12-21. Main boiler safety valves adjusted 28-2-23. Thickness of adjusting washers Lock nuts.

Material of Crank shaft Steel Identification Mark on Do. R.S. F.W.T. Material of Thrust shaft Steel Identification Mark on Do. F.W.T. Material of Tunnel shafts Steel Identification Marks on Do. R.S. F.W.T. Material of Screw shafts Steel Identification Marks on Do. F.W.T. Material of Steam Pipes Steel Test pressure 770 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 Yes. If so, state name of vessel S.S. Afwimer, Rpt. No. 4243.

General Remarks (State quality of workmanship, opinions as to class, &c. Pumps: For pump room, transfer 7 1/2 x 6 x 10, bilge 6 x 4 x 6, cargo pump room 2-12 x 20 x 13 x 24, bilge 6 x 4 x 6, donkey 14 x 10 1/4 x 12, evaporator 5 1/2 x 4 3/4 x 5, condenser 7 1/2 x 8 1/2 x 10, feed pumps 2-15 x 10 x 24, stripper 12 x 8 x 12, sanitary 7 1/2 x 6 x 10, fresh water 5 1/4 x 4 3/4 x 5, bilge 2-7 1/2 x 6 x 10, fuel oil 2-6 x 4 x 6, auxy condenser 12 x 14 x 14 x 12.

The machinery of this vessel has been built under special survey, the materials and workmanship are of good quality, and the machinery has been securely fitted on board and proved satisfactory under steam trial.

It is submitted that the vessel be eligible for a record of LMC 3, 23, and to have the notation "Fitted for oil fuel 3, 23, flash point above 150°F. in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. + LMC 3. 23. CL. FD. Fitted for oil fuel 3. 23. FP above 150°F.

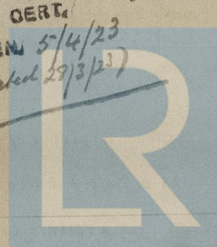
The amount of Entry Fee ... \$ 30 : 00 - Special ... \$ 579 : 75 Donkey Boiler Fee ELEC. LIGHT \$ 250 : 00 Travelling Expenses (if any) \$ 50 : 00

When applied for, 9th March 1923. When received, 26th March 1923.

Committee's Minute New York MAR 13 1923 Assigned + LMC-3.23

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

MACHINERY CERT. WRITTEN 5/4/23 (dated 27/3/23)



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