

Rpt. 4.

REPORT ON MACHINERY.

No. 4027

WED. FEB. 2 1921

Date of writing Report *Jan 8* 1921 When handed in at Local Office *Jan 12* 1921 Port of *Philadelphia*
 No. in Survey held at *Chester* Date, First Survey *10-6-20* Last Survey *3rd January 1921*
 Reg. Book. on the *Tug S.S. "SUNOCO"* (Number of Visits *33*)
 Master *E. THIRIAR* Built at *Chester* By whom built *Sun Shipbuilding Co* Tons { Gross *6998*
 Engines made at *Chester* By whom made *Sun Shipbuilding Co* when made *1921*
 Boilers made at *Chester* By whom made *Sun Shipbuilding Co* when made *1921*
 Registered Horse Power *612* Owner *Societe d'Armement et d'Industrie et de Commerce* Port belonging to *Antwerp*
 Nom. Horse Power as per Section 28 *612* 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"-45"-76"* Length of Stroke *51"* Revs. per minute *72* Dia. of Screw shaft *as per rule 15.45* 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 *5'-4"*
 Dia. of Tunnel shaft *as per rule 13.96* Dia. of Crank shaft journals *as per rule 14.66* Dia. of Crank pin *15.5"* Size of Crank webs *10 1/4 x 56* Dia. of thrust shaft under
 collars *15"* Dia. of screw *15"* Pitch of Screw *16.6"* No. of Blades *4* State whether moveable *Yes* Total surface *98 sq ft*
 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 *over* Diameter of ditto *over* Stroke *over* 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 *50 3/2" 125"* In Holds, &c. *In hold 20 3/2" One pump room 12 2 1/2"*
Offenders 20 3/2" Cargo pump room 20 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 *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 *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 *9195 sq ft* Is Forced Draft fitted *Yes* No. and Description of Boilers *3 S.E. Scotch*
 Working Pressure *190* Tested by hydraulic pressure to *285* Date of test *14-10-20* No. of Certificate *490*
 Can each boiler be worked separately *Yes* Area of fire grate in each boiler *69 sq ft* No. and Description of Safety Valves to
 each boiler *3 1/2" Lamin* Area of each valve *9.62 sq ft* Pressure to which they are adjusted *190* Are they fitted with easing gear *Yes*
 Smallest distance between boilers or uptakes and bunkers or woodwork *20"* Mean dia. of boilers *15.11 3/2"* Length *12.0 1/4"* Material of shell plates *Steel*
 Thickness *1 1/2"* Range of tensile strength *60,000 lb* 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 9/16"* Pitch of rivets *9 7/16"* Lap of plates or width of butt straps *22 3/4"*
 Per centages of strength of longitudinal joint *93.4* Working pressure of shell by rules *208* Size of manhole in shell *12 x 16"*
 Size of compensating ring *Flanged* No. and Description of Furnaces in each boiler *3 Morrison* Material *Steel* Outside diameter *52 1/4"*
 Length of plain part *top* Thickness of plates *crown 5/8"* Description of longitudinal joint *Weld* No. of strengthening rings *Yes*
 Working pressure of furnace by the rules *192.4* Combustion chamber plates: Material *Steel* Thickness: Sides *3/32"* Back *3/4"* Top *2 1/2"* Bottom *1"*
 Pitch of stays to ditto: Sides *8 1/2 x 6 1/2"* Back *8 3/4 x 5 1/8"* Top *8 3/4 x 5 1/2"* If stays are fitted with nuts or riveted heads *Both* Working pressure by rules *190.9*
 Material of stays *W1* Area at smallest part *1.994* Area supported by each stay *5.465* Working pressure by rules *195* End plates in steam space:
 Material *Steel* Thickness *1 1/8"* Pitch of stays *16 7/8 x 16"* How are stays secured *Drunk* Working pressure by rules *210* Material of stays *Steel*
 Area at smallest part *16.2126* Area supported by each stay *270 sq in* Working pressure by rules *239* Material of Front plates at bottom *Steel*
 Thickness *1"* Material of Lower back plate *Steel* Thickness *1 1/16"* Greatest pitch of stays *13"* Working pressure of plate by rules *245*
 Diameter of tubes *2 1/2"* Pitch of tubes *3 3/4 x 3 1/2"* Material of tube plates *Steel* Thickness: Front *1"* Back *3/4"* Mean pitch of stays *9"*
 Pitch across wide water spaces *13"* Working pressures by rules *212* Girders to Chamber tops: Material *Steel* Depth and
 thickness of girder at centre *10 1/2 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 *247* 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*

002770-002783-0247

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— 2 Connecting Rod top & bottom end bolts & nuts
2 Main bearing bolts; 1 Propeller shaft; Section of Crank shaft; 2 Propeller blades
1 Eccentric rod; 1 set of Piston springs for each piston; 1 set of top and bottom
end braces; 1 set of valves for feed & bilge pumps; 1 bucket and rod for circular
pumps, a quantity of assorted bolts and nuts of various sizes; plates of iron
& mild steel of various sizes

The foregoing is a correct description,

Robert. Haig

Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1920. June 10. 15. 24. 29. July 20. Aug 23. 26. Sept. 2. 7. 14. 24. Oct. 1. 4. 8. 12. 14. 22. 26. 28. Nov 5. 17. 23. 29. Dec 6. 7. 10. 14. 21. 23. 28. 29. 1921 Jan 3.
During erection on board vessel ---
Total No. of visits 33

Is the approved plan of main boiler forwarded herewith *Yes*

" " " donkey " " " "

Dates of Examination of principal parts—Cylinders 2-9-20 Slides 12-10-20 Covers 2-9-20 Pistons 4-10-20 Rods 4-10-20
Connecting rods 4-10-20 Crank shaft 26-8-20 Thrust shaft 28-10-20 Tunnel shafts 28-10-20 Screw shaft 22-10-20 Propeller 23-11-
Stern tube 22-10-20 Steam pipes tested 10-12-20 Engine and boiler seatings 4-12-20 Engines holding down bolts 14-12-20
Completion of pumping arrangements 29-12-20 Boilers fixed 6-12-20 Engines tried under steam 29-12-20
Completion of fitting sea connections 4-12-20 Stern tube 29-11-20 Screw shaft and propeller 29-11-20
Main boiler safety valves adjusted 23-12-20 Thickness of adjusting washers *Lock nuts*
Material of Crank shaft *Steel* Identification Mark on Do. *FWT* Material of Thrust shaft *Steel* Identification Mark on Do. *FWT*
Material of Tunnel shafts *Steel* Identification Marks on Do. *FWT* Material of Screw shafts *Steel* Identification Marks on Do. *RS*
Material of Steam Pipes *Steel* Test pressure *650 lb.*

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 *SS "AGWIMARS"*

General Remarks (State quality of workmanship, opinions as to class, &c.)

Pumps: 2 Padojets: 2 Feed pumps 12x8x24: Donkey 14x10 1/4 x 12: Sanitary 6x5 1/4 x 6 Imperial
5 1/4 x 4 3/4 x 5 Condensate 7 1/2 x 8 x 16. Aqua Condensate 10 x 14 x 14 x 12: Bilge 6 x 5 1/4 x 6 Ind bilge 6 x 5 1/4 x 6: 2 Fuel oil
Service 6 x 4 x 6: Cargo bilge 6 x 5 1/4 x 6: Transfer 6 x 5 1/4 x 6: 2 Cargo pumps 16 x 14 x 18: Ind pump. 16 x 6 x 1
Fresh water 5 1/4 x 4 3/4 x 5

The Machinery of this Vessel has been built under Special Survey and in accordance with the approved plans. The workmanship and materials all good
The Machinery has been tried under steam and proved satisfactory
It is submitted that the vessel be eligible for a record of +LMC 1-21 and to have
rotation fitted for oil fuel 1-21 Flash point above 150°F in the Register Book

It is submitted that
this vessel is eligible for
THE RECORD. +LMC 1.21. F1.

FITTED FOR OIL FUEL 1.21. FP ABOVE 150°F.

Recd 8/2/21

J. Adamson

Engineer Surveyor to Lloyd's Register of Shipping.

The amount of Entry Fee ... £ 15.00 : When applied for,
Special ... £ 253.00 :
Donkey Boiler Fee ... £ :
Travelling Expenses (if any) £ 20.00 : When received,
2/4/21 3/3/21

Committee's Minute New York JAN 18 1921

Assigned

+LMC 1.21

MACHINERY CERT.
WRITTEN 2.2.21



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Foundation