

REPORT ON MACHINERY.

No. 519

WED. NOV. 28 1917.

Date of writing Report August 25 1917 When handed in at Local Office August 28 1917 Port of Seattle Wash. U.S.A.

No. in Survey held at Tacoma & Aberdeen Wash. Date, First Survey October 25 1916 Last Survey March 25 1917

Reg. Book. No. 1111 on the Wood Auxiliary Tug Screw S. M. S. "SANTINO" (Number of Visits 8)

Master M. Howard Built at Aberdeen By whom built Grays Harbor Shipbuilding Co. Tons Gross 2491 Net 2017

Engines made at Tacoma By whom made Puget Sound Iron & Steel Works when made 1917

Boilers made at Seattle By whom made Seattle Boiler Works when made 1917

Registered Horse Power 700 Owners Gaston, Williams & Wignmore Port belonging to New York

Net. Horse Power as per Section 28 200 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Crude Oil Engine—2 stroke cycle No. of Cylinders 8 each No. of Cranks 4 each

Dia. of Cylinders Each 16 1/2" Length of Stroke 22" Revs. per minute 210 Dia. of Screw shaft as per rule 7 1/2" Material of screw shaft Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube No 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 Yes, lapped Length of stern bush 23 1/2" 29 deep

Dia. of Tunnel shaft as per rule None Dia. of Crank shaft journals as per rule 7 1/4" Dia. of Crank pin 7 1/2" Size of Crank webs 5 1/2" x 9 1/2" Dia. of thrust shaft under

collars 7 5/8" Dia. of screws 6 feet Pitch of Screws 5 feet No. of Blades 3 State whether moveable No Total surface Each 10.8 feet

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

No. of Bilge pumps 2 Diameter of ditto 5" Stroke 7" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 3 Sizes of Pumps 1-3 Plunger 8" x 10" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Power Two 4" — Hand Two 3" In Holds, &c. Power One 4" — Hand Two 3"

No. of Bilge Injections — sizes — Connected to condenser, or to circulating pump — Is a separate Donkey Suction fitted in Engine room & size Yes 4"

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 No

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Valves

Are they fixed sufficiently high on the ship's side to be seen without lifting the stanchion plates Yes Are the Discharge Pipes above or below the deep water line above

Is the discharge Valve always accessible on the side of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate No

How are they protected —

Are the pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Are the cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes

Is it fitted with a watertight door — worked from —

Manufacturer of Steel North Brothers Co.

No. and Description of Boilers One Tubular, dry back.

Working Pressure 110 lbs Tested by hydraulic pressure to 165 lbs Date of test January 2 No. of Certificate —

Can each boiler be worked separately — Area of fire grate in each boiler 8.8 sq ft No. and Description of Safety Valves to

each boiler One Spring loaded Area of each valve 5.94 Pressure to which they are adjusted 110 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 24" Mean dia. of boilers 6'-1" Length 9'-11" Material of shell plates Steel

Thickness 1/2" Range of tensile strength 60,000 lbs Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Single lap

long. seams Double lap Diameter of rivet holes in long. seams 7/8" Pitch of rivets 2.84 Lap of plates or width of butt straps 5"

Per centages of strength of longitudinal joint rivets 67. plate 82.6 Working pressure of shell by rules 166.5 Size of manhole in shell 11" x 15"

Size of compensating ring 3/4 x 24 x 28 No. and Description of Furnaces in each boiler One plain Material Steel Outside diameter 30 3/8"

Length of plain part top 36" bottom 36" Thickness of plates crown 1/2" bottom 1/2" Description of longitudinal joint Double lap No. of strengthening rings 2

Working pressure of furnace by the rules 151 Combustion chamber plates: Material None Thickness: Sides — Back — Top — Bottom —

Pitch of stays to ditto: Sides — Back — Top — If stays are fitted with nuts or riveted heads — Working pressure by rules —

Material of stays — Area at smallest part — Area supported by each stay — Working pressure by rules — End plates in steam space:

Material Steel Thickness 1/2" Pitch of stays 10 3/4" How are stays secured Double Nut Working pressure by rules 218 Material of stays Steel

Area at smallest part 3.976" Area supported by each stay — Working pressure by rules 218 Material of Front plates at bottom Steel

Thickness 1/2" Material of Lower back plate Steel Thickness 1/2" Greatest pitch of stays None Working pressure of plate by rules —

Diameter of tubes 3" Pitch of tubes 4" Material of tube plates Steel Thickness: Front 1/2" Back 1/2" Mean pitch of stays None

Pitch across wide water spaces — Working pressures by rules — Girders to Chamber tops: Material None Depth and

thickness of girder at centre — Length as per rule — Distance apart — Number and pitch of stays in each —

Working pressure by rules — 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 which each is adjusted — Is Easing Gear fitted —

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded? yes

SPARE GEAR. State the articles supplied:—

1 Connecting rod bottom end bearings ✓
1 Connecting rod top end bearings ✓
2 Crank pin bolts ✓
2 Main bearing brasses ✓
2 Crosshead brasses ✓
2 Thrust pin bolts ✓

12 Piston rings ✓
1 Fuel oil injection pump & plunger ✓
3 " " " " " Springs ✓
2 Combustion Chambers ✓
2 Fuel oil nozzles complete ✓

The foregoing is a correct description,
The Puget Sound Iron and Steel Works

By John A. Roberts Pres.

ENGINES Manufacturers BOILER

Seattle Boiler Works

Frank H. Hopkins Mgr.

Dates of Survey while building { During progress of work in shops -- } Oct 25 Nov 14 1916 Jan 2-21, 1917
{ During erection on board vessel -- } Feb 3-25 March 24-25, 1917
Total No. of visits 8

Is the approved plan of main boiler forwarded herewith.

Dates of Examination of principal parts—Cylinders Oct 25 Nov 14 Slides — " " " donkey " " " Copy
Connecting rods Oct 25 Nov 14 Crank shaft Oct 25 Nov 14 Thrust shaft Oct 25 Nov 14 Tunnel shafts None Screw shaft Nov 14 Propeller Nov 14
Stern tube Bearings Nov 14 Steam pipes tested — Engine and boiler seatings Feb 25 Engines holding down bolts Feb 25
Completion of pumping arrangements Feb 25 Boilers fixed Feb 25 Engines tried under steam March 24-25
Completion of fitting sea connections Nov 14 Stern tube None Screw shaft and propeller Nov 14
Main boiler safety valves adjusted Thickness of adjusting washers

Material of Crank shaft Steel Identification Mark on Do. None Material of Thrust shaft Steel
Material of Tunnel shafts — Identification Marks on Do. — Material of Screw shafts Steel
Material of Steam Pipes — Test pressure

Is an installation fitted for burning oil fuel yes Is the flash point of the oil to be used

Have the requirements of Section 49 of the Rules been complied with

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.)

In the first instance the machinery and donkey boiler were being constructed under survey for classification in Bureau Veritas. At the request of the Owners a general examination was made on the above dates with the view of obtaining classification in the Society's Register.

The main engine, internal combustion type with ignition valve, to use refined oil for combustion in some instances named Cadol Fuel Oil, Diesel oil and kerosene, which has a gravity of from 23 to 28 degrees Baumé having a flash point, closed cup, not less than 150 degrees F. The material and workmanship are both of good quality. The machinery seen tried under working conditions and found satisfactory.

Fitted with Electric Light. Dynamo 5 KW continuous current, double wire system. Switchboard and engine room and fittings made of incombustible material, seen tried under working conditions and the compasses adjusted with the current full off and on. The approved plan of the donkey boiler shows a working pressure of 110 lbs but the safety valve was adjusted at 135 lbs. The Machinery eligible in my opinion for classed in the Society's Register and I have the record of + LMC 3.17 and electric light, and that the safety valve of the donkey boiler be adjusted at 110 lbs working pressure.

The amount of Entry Fee ... \$ 25: 15 :
Special ... \$ 150: :
Donkey Boiler Fee ... \$ 25: :
Travelling Expenses (if any) \$ 40: 40: 17. 4 19

When applied for, 19.
When received, 17. 4 19

James Forder
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

New York OCT 23 1917

Assigned

+ LMC 3.17
D.B. 3.17-110 #

MACHINERY CERTIFICATE
WRITTEN 2/12/17



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Foundation