

Rpt. 4a.

REPORT ON MACHINERY.

No. 578

REC'D NEW YORK Nov. 24, 1919

Received at London Office

Date of writing Report Nov. 8, 1919 When handed in at Local Office Nov. 17, 1919 Port of Portland, Oregon

No. in Survey held at Portland, Oregon

Date, First Survey June 6, 1919 Last Survey Sept. 26, 1919

Reg. Book.

(Number of Visits 28.)

on the Steel Single Screw Steamer "WEST RARITANS"

Tons $\left\{ \begin{array}{l} \text{Gross} \quad 6187 \\ \text{Net} \quad 3837.61 \end{array} \right.$

Master O. Fredrickson Built at Portland, Oregon By whom built Northwest Steel Company When built 1919

Engines made at Jersey City, N.J. By whom made Vulcan Iron Works when made 1919

Boilers made at Portland, Oregon By whom made Columbia River Ship Bldg. Corp. when made 1919

Nominal Horse Power 605 Owners Emergency Fleet Corporation Port belonging to Portland, Oregon.

Shaft Horse Power at Full Power 2800 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Shop Nos. Turbine No. 3. Gear No. S.O. 4694, Lloyd's 1400, 8-7-19 J.A.R.

TURBINE ENGINES, &c. Description of Engines Cross Compound Geared Parson's No. of Turbines Two

Diameter of Rotor Shaft Journals, H.P. 4" L.P. 4" Diameter of Pinion Shaft 5" and 12"
Diameter of Journals 5" & 12" Distance between Centres of Bearings 2'4 1/2" & 4'11" Diameter of Pitch Circle 7'-9" and 1'-3 1/2"
Diameter of Wheel Shaft 13 1/2" Distance between Centres of Bearings 3'-7" Diameter of Pitch Circle of Wheel 51 1/2" & 93 1/2"
Width of Face 14" & 26" Diameter of Thrust Shaft under Collars Rule 13.60 ✓ Diameter of Tunnel Shaft as per rule 12'9" 12.96
as fitted 13"
No. of Screw Shafts One Diameter of same as per rule 14.08 C.L. Diameter of Propeller 16'-6" Pitch of Propeller 12'-4"
as fitted 14 1/2"
No. of Blades 4 State whether Moveable Yes Total Surface 90 Sq. Ft. Diameter of Rotor Drum, H.P. ✓ L.P. ✓ Astern ✓
Thickness at Bottom of Groove, H.P. ✓ L.P. ✓ Astern ✓ Revs. per Minute at Full Power, Turbine 3600 Propeller 90

PARTICULARS OF BLADING.

	H.P.			L.P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	5/8"	13-3/8"	6	2 1/4"		2	H.P. & L.P. Turbine fitted with Astern Impulse Nozzles of a mean dia. of 2'-5" with 3/16" clearance. H.P. 5/8" Nozzle, L.P. 1 1/4" Nozzle each having 3 rows of buckets.		
2ND	13/16"	13-13/16"	6	2-13/16"		2			
3RD	1-1/16"	14-1/16"	5	3 1/2"		2			
4TH	1-3/8"	14-3/8"	5	4-3/8"		2			
5TH	1-1/8"	17-7/8"	3	5"		1			
6TH	1-7/16"	17-7/16"	3	5"		1			
7TH	1-7/8"	17-7/8"	3	5"		1			
8TH	2-3/8"	18-3/8"	3	5"		1			

No. and size of Feed pumps Two vertical Simplex 10 1/2" x 8" x 20"

No. and size of Bilge pumps Three Horizontal Duplex 12" x 10" x 12", 12" x 8 1/2" x 12", 6" x 6" x 6".

No. and size of Bilge suction in Engine Room Four of 3 1/2", In Tunnel two of 3 1/2", In Thrust Recess one of 3 1/2".

In Holds, &c. Two in each of 3 1/2".

No. of Bilge Injections One sizes 10 1/2" Connected to condenser, or to circulating pump Cir.P. Is a separate Donkey Suction fitted in Engine Room & size Two 5".

Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes

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

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 below

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 Vent and Sounding How are they protected By Wood Casings

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 Upper Engine Room

The Screw Shaft Liner is fitted in three lengths burned together to full depth of Liner.

BOILERS, &c. (Letter for record) Manufacturers of Steel Otis Steel Co., Cleveland, O.

Total Heating Surface of Boilers 8007 Is Forced Draft fitted Yes No. and Description of Boilers 3 Scotch Marine J.S.B.

Working Pressure 210 Tested by hydraulic pressure to 315 Date of test Aug. 25 & 27, 1919 Nos of Certificates 136 & 137

Can each boiler be worked separately Yes Area of fire grate in each boiler 60.3 sq. ft. No. and Description of Safety Valves to

each boiler Two 3 1/2" spring Area of each valve 9.62 sq. in. Pressure to which they are adjusted 210 lbs. Are they fitted with easing gear Yes.

Smallest distance between boilers or uptakes and bunkers or woodwork 2 ft. Mean dia. of boilers 14'9" Length 11'0" Material of shell plates steel.

Thickness 1-9/16" Range of tensile strength 60,000 to 73,000 lbs. Hds. Flanged Descrip. of riveting: cir. seams D.R.

long. seams triple riveted straps Diameter of rivet holes in long. seams 1-9/16" Pitch of rivets 10" x 5" Lap of plates or width of butt straps 22-5/8"

rivets 91.27 plates 84.4 Working pressure of shell by rules 231 lbs. Size of manhole in shell 12" x 16"

Size of compensating ring No. and Description of Furnaces in each Boiler 3 Morrison Material Steel Outside diameter 4'0"

Length of plain part top 21/32" crown 21/32" Description of longitudinal joint No. of strengthening rings

bottom 21/32" Working pressure of furnace by the rules 222 lbs. Combustion chamber plates: Material Steel Thickness: Sides 11/16" Back 11/16" Top 11/16" Bottom 15/16"

Pitch of stays 1 1/2" Sides 7 1/2" x 7 1/2" Back 7 1/2" x 7 1/2" Top 8 5/8" x 8 5/8" If stays are fitted with nuts or riveted heads 1 1/2" by nuts Working pressure by rules 234 lbs.

Material of stays 1-8/8" Diameter at smallest part 2.0974" Area supported by each stay 56.25" Working pressure by rules 215 lbs. End plates in steam space

Material steel Thickness 1-3/16" Pitch of stays 1 1/4" How are stays secured double Working pressure by rules 212 lbs. Material of stays steel

Diameter at smallest part 3-3/8" Area supported by each stay 297 sq. in. Working pressure by rules 2707 lbs. Material of Front plates at bottom Steel

Thickness 13/16" Material of Lower back plate Steel Thickness 11/16" Greatest pitch of stays 13 1/2" Working pressure of plate by rules 222 lbs.

Diameter of tubes 3" Pitch of tubes 4" x 4-1/8" Material of tube plates Steel Thickness: Front 13/16" Back 13/16" Mean pitch of stays 10 1/4"

Pitch across wide water spaces 13 1/2" Working pressures by rules 277 lbs. Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 11" x 1 1/2" Length as per rule 3'0" Distance apart 8-5/8" Number and pitch of stays in each 3 at 8-5/8"

Working pressure by rules 260 lbs. Steam dome: description of joint to shell % of strength of joint Diameter

Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets

Working pressure of shell by rules Crown plates: Thickness How stayed

002418 - 002426 - 0162

Lloyd's Register
Foundation

SUPERHEATER. Foster Waste Heat Type _____ Date of Approval of Plan _____ Tested by Hydraulic Pressure to 630 lbs.
Date of Test 10-6-19(No. 900 F.H.O.) Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler Yes
Diameter of Safety Valve 1 1/2" Pressure to which each is adjusted 215 lbs. Is Easing Gear fitted Yes

IS A DONKEY BOILER FITTED? No If so, is a report now forwarded? Yes

SPARE GEAR. State the articles supplied:— 2 studs and nuts for each size of rotor bearing, 2 studs and nuts for main gear wheel bearing, 2 studs and nuts for pinion bearing, 1 set coupling bolts of each size used, 1/20th of total number of bolts & nuts for each gear case joint, 1/20th for each turbine casing joint, 1 set of bearing bushes for one gear wheel shaft, 1 set of bearing bushes for rotor, 1 set of bearing bushes for pinion shafts, 1 complete set of Parsons Carbon Packing Blocks, 1 set of shoes for main thrust bearing, 1 set of shoes for H. P. Turbine Thrust Bearing, 1 set of Liners for adjusting block of different thicknesses for main thrust & Turbine thrusts, 1 escape valve spring of each size fitted, 1 complete set of labyrinth packing for one dummy gland, 1 high speed pinion, 2 thermometers for oil circulating system, 1 set feed pump valves, 1 set bilge pump valves, 1 extra lubricating pump complete, 1 bucket & rod for lubricating pump, 1 set of valves for lubricating pump, 24 boiler tubes, 50 condenser tubes and 100 ferrules, 1 set boiler feed check valves, a quantity of bolts, studs, nuts, bars and plates of mild steel.

The foregoing is a correct description,

Manufacturer.

Dates of Survey June 6, 9, 20, 21, 25 July 8, 9, 22, 31 August 6, 9, 18, 19, 20, 21, 22, 25, 27, 28 September 3,
During progress of work in shops -- 5, 8, 12, 18, 19, 23, 24, 26.
During erection on board vessel --- 28.
Total No. of visits 28.

Is the approved plan of main boiler forwarded herewith No

Dates of Examination of principal parts—Casings ✓ Rotors ✓ Blading ✓ Gearing ✓
Rotor shaft June 25 Thrust shaft June 25 Tunnel shafts June 25 Screw shaft June 25 Propeller July 9
Stern tube Aug. Steam pipes tested Aug. 6 Engine and boiler seatings Aug. 19 Engines holding down bolts Aug. 19
Completion of pumping arrangements Aug. 25 Boilers fixed Aug. 25 Engines tried under steam Sept. 23
Main boiler safety valves adjusted Sept. 23 Thickness of Check Nuts
Material and tensile strength of Rotor shaft ✓ Identification Mark on Do. ✓
Material and tensile strength of Pinion shaft ✓ Identification Mark on Do. ✓
Material of Wheel shaft 856 A.W.L., 860 A.W.L., 870 A.W.L., 871 A.W.L., 857 A.W.L., 859 A.W.L. Identification Mark on Do. 843 A.W.L.
Material of Tunnel shafts Steel Identification Marks on Do. A.W.L. 852
Material of Steam Pipes O. H. Lapwelded Steel Test pressure 630 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 a duplicate of a previous case No If so, state name of vessel ✓

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

American Bureau
The H.P. & L.P. Turbines have been constructed under Special Survey at Jersey City, N. J.
The Falk Gears have been constructed under Lloyd's Special Survey at Milwaukee, Wisconsin and the
Main Boilers have been constructed under Special Survey at Portland, Oregon, of material tested
by the Society's Surveyors, and the workmanship is good.

It is submitted that the record of L.M.C. 9-19 Electric Light be made in the Register Book in the case of this vessel.

It is submitted that 2 STEAM TURBINES GEARED TO / SCREW SHAFT.
this vessel is eligible for
THE RECORD. L.M.C. 9. 19. FD

FITTED FOR OIL FUEL 9. 19. F.P. ABOVE 150°F. N.Y.C. 18/12/19

The amount of Entry Fee ... \$ 15.00 : When applied for, Oct. 24 19. 19.
Special 1/3 Mach. \$ 84.00 : ✓
Donkey Boiler Fee ... \$ 49 :
Travelling Expenses (if any) \$ 40.00 : When received, Oct. 28 19. 19.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute New York NOV 25 1919

Assigned

MACHINERY CERT.
WRITTEN
9.12.19

L.M.C. 9. 19



© 2020

Lloyd's Register
Foundation