

# REPORT ON MACHINERY.

REC'D NEW YORK *Nov. 24 1919*

Received at London Office *Nov. 17 1919*

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 } Gross *6187*  
Net *3837.61*

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	<i>5/8"</i>	<i>13-3/8"</i>	<i>6</i>	<i>2 1/4"</i>		<i>2</i>	<i>H.P. &amp; L.P. Turbine fitted</i>		
2ND	<i>13/16"</i>	<i>13-13/16"</i>	<i>6</i>	<i>2-13/16"</i>		<i>2</i>	<i>with Astern Impulse Nozzles</i>		
3RD	<i>1-1/16"</i>	<i>14-1/16"</i>	<i>5</i>	<i>3 1/2"</i>		<i>2</i>	<i>of a mean dia. of 2'-5" with</i>		
4TH	<i>1-3/8"</i>	<i>14-3/8"</i>	<i>5</i>	<i>4-3/8"</i>		<i>2</i>	<i>3/16" clearance. H.P. 5/8"</i>		
5TH	<i>1-1/8"</i>	<i>17-7/8"</i>	<i>3</i>	<i>5"</i>		<i>1</i>	<i>Nozzle, L.P. 1 1/2" Nozzle each</i>		
6TH	<i>1-7/16"</i>	<i>17-7/16"</i>	<i>3</i>	<i>5"</i>		<i>1</i>	<i>having 3 rows of buckets.</i>		
7TH	<i>1-7/8"</i>	<i>17-7/8"</i>	<i>3</i>	<i>5"</i>		<i>1</i>			
8TH	<i>2-3/8"</i>	<i>18-3/8"</i>	<i>3</i>	<i>5"</i>		<i>1</i>			

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 tests *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 *double riveted* 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"*

Per centages of strength of longitudinal joint rivets *91.27* Working pressure of shell by rules *231 lbs.* Size of manhole in shell *12" x 16"*

plates *84.4*

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"* 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 to flts. 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 *steel* Diameter at smallest part *2.0974"* Area supported by each stay *56.25"* Working pressure by rules *215 lbs.* End plates in steam space *steel*

Material *steel* Thickness *1-3/16"* Pitch of stays *17 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 *✓*

**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?

**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,

*[Signature]* Manufacturer.

Dates of Survey while building: During progress of work in shops -- June 6, 9, 20, 21, 25 July 8, 9, 22, 31 August 6, 9, 18, 19, 20, 21, 22, 25, 27, 28 September 3, 5, 8, 12, 18, 19, 23, 24, 26. During erection on board vessel --- 5, 8, 12, 18, 19, 23, 24, 26. 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  donkey

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 ~~roping~~ 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. Steel Material of Thrust shaft 843 A.W.L. Identification Mark on Do. Steel 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. NYC 18/12/19

The amount of Entry Fee ...	\$ 15.00	When applied for,	<u>Oct. 24 19. 19.</u>
Special <u>1/3 Mach.</u>	\$ <u>84.00</u>	When received,	<u>Oct. 28 19. 19.</u>
Donkey Boiler Fee ...	\$ <u>69</u>		
Travelling Expenses (if any)	\$ 40.00		

*[Signature]*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute New York NOV 25 1919

Assigned MACHINERY CERT. WRITTEN 9.12.19

Write "Bridge Sheer Stroke" and "Upper Deck Sheer Stroke" opposite the corresponding letter.  
 THKNESS CLEAR OF DO. OF DBLG. OF F  
 Length a POOP SIDE SHORT BR FORECAST  
 Upper De Stringer  
 Second De Stringer  
 FRAMES e REVERSED Forecas  
 LOWER MAST  
 Bowsprit  
 Topmasts, Ya  
 Rigging, Ma  
 Sails.

n. A. B. 120 Cir. Letter No. 204

*[Signature]*

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