

REPORT ON MACHINERY.

THU. 20 MAR. 1919
No. 546

REC'D NEW YORK 15.6.27-919

Received at London Office

Date of writing Report Feb. 19 1919 When handed in at Local Office Feb. 19 1919 Port of Portland, Oregon

No. in Survey held at Portland, Oregon Date, First Survey Oct. 29 '18 Last Survey Jan 14 1919
Reg. Book. on the Steel S.S. "WEST WAUNA" (Number of Voids 24)

Gross 6188.29
Net 4642.33
Tons

Master C. Patterson Built at Portland, Ore By whom built Northwest Steel Co. When built 1919

Engines made at Schenectady, N.Y. By whom made General Electric Co. when made 1918

Boilers made at Portland, Ore By whom made Willamette Iron & Steel Works when made 1918

Registered Horse Power 583 Owners U.S. Emergency Fleet Corp. Port belonging to Portland, Ore

Shaft Horse Power at Full Power 2500 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

URBINE ENGINES, &c. No. 13454 Description of Engines Double reduction Geared Turbine No. of Turbines One

Diameter of Rotor Shaft Journals, H.P. 8" L.P. ✓ Diameter of Pinion Shaft 4" H.S. Pinion 7.833

Diameter of Journals H.S. Pinion 7" Distance between Centres of Bearings Gear 24.5 Diameter of Pitch Circle Gears 5.666 L.S.P. 10.75

Diameter of Wheel Shaft 14" Distance between Centres of Bearings L.S. Pinion 52" Diameter of Pitch Circle of Wheel 6.5475

Width of Face 14.35" Diameter of Thrust Shaft under Collars 13.5" Diameter of Tunnel Shaft as per rule 12.49"

No. of Screw Shafts One Diameter of same as per rule 13.98" as fitted 14.5" Diameter of Propeller 16 ft. 6 in. Pitch of Propeller 13.5 ft.

No. of Blades 4 State whether Moveable yes Total Surface 62.9 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 3374.5 Propeller 90

ARTICULARS OF BLADING.

	H.P.			L.P.			ASTERN.		
	ACTIVE HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	ACTIVE HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	.45-1.25	2.11 1/2	2				.8125-1.5	3.3	2
2ND	.625	3.9	1				3.375	3.3	1
3RD	1.25	3.10 1/2	1						
4TH	2.5	4.0	1						
5TH	6.0	4.2	1						
6TH									
7TH									
8TH									

No. and size of Feed pumps Two Vertical Simpson 12" x 9" x 70"

No. and size of Bilge pumps Three Duplex Horizontal 12" x 10 1/4" 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". In addition two of 3 1/2" in C & 4 Hold.

No. of Bilge Injections One size 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 pieces lugged together to full depth forming one continuous line

BOILERS, &c. (Letter for record (T)) Manufacturers of Steel Elmoris Steel Co.

Total Heating Surface of Boilers 8112.9 sq. ft. Is Forced Draft fitted yes No. and Description of Boilers 3 Scotch 3 SB.

Working Pressure 210 lbs. Tested by hydraulic pressure to 315 lbs. Date of test Nov. 14, 1918 No. of Certificate

Can each boiler be worked separately yes Area of fire grate in each boiler 60 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 7/8" Range of tensile strength 60,000 to 73,000 lbs. Are the shell plates welded or flanged Hd. flanged Descrip. of riveting: cir. seams D.R

long. seams Triple Riveted Diameter of rivet holes in long. seams 1 7/8" Pitch of rivets 10"-5" Lap of plates or width of butt straps 22 1/4"

Per centages of strength of longitudinal joint rivets 95 plates 84.4 Working pressure of shell by rules 231 lbs. Size of manhole in shell 12" x 16"

Size of compensating ring Hd. flanged in No. and Description of Furnaces in each Boiler 3 Harrison Material Steel Outside diameter 45 1/8"

Length of plain part top 21 1/2" crown 21 1/2" bottom 21 1/2" Description of longitudinal joint No. of strengthening rings

Working pressure of furnace by the rules 238 lbs. Combustion chamber plates: Material Steel Thickness: Sides 1 1/8" Back 1 1/8" Top 1 1/8" Bottom 1 5/8"

Pitch of stays to ditto: Sides 4" x 8" Back 4 1/4" x 4 3/4" Top 6 3/8" x 4" If stays are fitted with nuts or riveted heads R.H. Working pressure by rules 214 lbs

Material of stays Hd. kn. Diameter at smallest part 1 1/2" Area supported by each stay 57.5 sq. in. Working pressure by rules 230 lbs. End plates in steam space

Material Steel Thickness 1 1/4" Pitch of stays 1 1/2" x 16 3/8" How are stays secured double nuts Working pressure by rules 244 lbs. Material of stays Steel

Diameter at smallest part 3 1/4" Area supported by each stay 286.2 sq. in. Working pressure by rules 300 Material of Front plates at bottom Steel

Thickness 1 3/8" Material of Lower back plate Steel Thickness 1 3/8" Greatest pitch of stays 4" x 13" Working pressure of plate by rules 314 lbs.

Diameter of tubes 3" Pitch of tubes 4" x 4 1/8" Material of tube plates Steel Thickness: Front 1 3/8" Back 1 3/8" Mean pitch of stays 8" x 12 3/8"

Pitch across wide water spaces 8" x 13" Working pressures by rules 283 lbs. Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 11" x 12 1/2" Length as per rule 34" Distance apart 8 1/8" Number and size of stays in each 4 at 4"

Working pressure by rules 286 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

Lloyd's Register
W 427-0104

SUPERHEATER. Type *Foster waste heat* Date of Approval of Plan _____ Tested by Hydraulic Pressure to *630 lbs*
 Date of Test *Sept 25, 1918* 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 Propeller blades, 1 set coupling bolts, 1 set feed pump valves, 1 set boiler feed check valves, 1 set air pump valves, 1 set bilge pump valves, 40 condenser tubes, 100 do ferrules, an assortment of bolts, nuts, studs and iron etc various sizes.

The foregoing is a correct description,
WILLAMETTE IRON & STEEL WORKS, Manufacturer.
Wm Elliot, Chief Engineer

Dates of Survey while building
 During progress of work in shops -- *Oct. 29, Nov. 4, 12, 13, 15, 21, 25, 26.*
 During erection on board vessel --- *Nov. 29, 30, Dec. 2, 5, 9, 12, 13, 16, 18, 20, 24, 26, 27, 30, 31, Jan. 2, 9.*
 Total No. of visits *24* Is the approved plan of main boiler forwarded herewith *no*
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 Dates of Examination of principal parts—Casings Rotors Blading Gearing
 Rotor shaft Thrust shaft *Dec. 2* Tunnel shafts *Dec 2* Screw shaft *Dec. 5* Propeller *Dec 5*
 Stern tube *Nov. 4* Steam pipes tested *Dec 24* Engine and boiler seatings *Dec. 12* Engines holding down bolts *Dec. 30*
 Completion of pumping arrangements *Dec 20* Boilers fixed *Dec 5* Engines tried under steam *Jan. 9*
 Main boiler safety valves adjusted *Jan. 2* Thickness of adjusting washers *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 Identification Mark on Do. Material of Thrust shaft *Steel* Identification Mark on Do. *1944 CW*
1928 CW, 1941 CW, 1936 CW, 1914 CW, 1891 CW, 1941 CW.
 Material of Tunnel shafts *Steel* Identification Marks on Do. Material of Screw shafts *Steel* Identification Marks on Do. *1694 CW*
 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. *yes* If so, state name of vessel *Har Baron*

General Remarks (State quality of workmanship, opinions as to class, &c.)
The Geared Turbine has been constructed under special survey at Seheuetady, Ct. y. The Boilers have been built under special survey, of material tested by the Society's Surveyors, at Portland, Oregon and the workmanship is good.

It is submitted that the record of + LMC 1-19 should be made in the Register Books in the case of this vessel.

It is submitted that this vessel is eligible for
THE RECORD + LMC 1-19. FD.
GEARED STEAM TURBINE
FITTED FOR OIL FUEL 1-19 F.P. ABOVE 150°F.
 When applied for, *Jan 3, 1919* *J.W.D.* *J.K.* *25/3/19*
 When received, *Feb. 1, 1919* *J.W. Yates*
 Engineer Surveyor to Lloyd's Register of Shipping.

The amount of Entry Fee ... \$ 45:00
 Special ... \$ 246:00
 Donkey Boiler Fee ... \$
 Travelling Expenses (if any) \$ 25:00

Committee's Minute *New York MAR 4 1919*

Assigned *+ LMC 1.19*

Certificate (if required) to be sent to... (The Surveyors are requested not to write on or below the space for Committee's Minute.)

