

## REPORT ON MACHINERY.

No. 561

Received at London Office

Writing Report May 19 1919 When handed in at Local Office May 19 1919 Port of Portland, Oregon  
Survey held at Portland, Oregon Date, First Survey Feb. 21, 1919 Last Survey May 16 1919  
Book. Steel S.S. WEST TOTANT (Number of Visits 25) Tons { Gross 6280.82  
Net 3926.11  
Built at Portland, Ore By whom built Columbia River S.B. Corp. When built 1919  
Machinery made at Schenectady, N.Y. By whom made General Electric Co. when made 1919  
Engines made at Portland, Ore By whom made Columbia River Ship Building Co. when made 1919  
Horse Power 549 Owners Emergency Fleet Corporation Port belonging to Portland, Ore  
Horse Power at Full Power 2500 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

Nos. 13558 GEAR 3391 Description of Engines Double reduction geared turbine No. of Turbines One  
BINE ENGINES, &c. Diameter of Rotor Shaft Journals, H.P. 8" L.P. ✓ Diameter of Pinion Shaft 4" H.S.P. Y. 612  
Diameter of Journals 4 1/4" Distance between Centres of Bearings 24" Diameter of Pitch Circle 25 1/2"  
Diameter of Wheel Shaft 14" Distance between Centres of Bearings LSP 63 1/2" Diameter of Pitch Circle of Wheel LSP 11 1/2"  
Pitch of Face 20.44 Diameter of Thrust Shaft under Collars 13 1/2" Diameter of Tunnel Shaft as per rule 12.49"  
Pitch of Screw Shafts One Diameter of same as per rule 13.98" Diameter of Propeller 14 ft. Pitch of Propeller 13.6"  
Number of Blades 4 State whether Moveable yes Total Surface 80 3/4 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 3242 Propeller 90

## PARTICULARS OF BLADING.

	H. P.			L. P.			ASTERN.		
	ACTIVE HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.	ACTIVE HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.
EXPANSION	1.5-1.25	2.11 1/2	2				1.25-1.5	3.3	2
"	.625	3.9	1				3.278	3.3	1
"	1.25	3.10 1/2	1						
"	2.5	4.0	1						
"	6	4.2	1						
"									
"									
"									
"									

No. and size of Feed pumps 2 Vertical Simplex 10" x 8 1/2" x 20"  
No. and size of Bilge pumps 3 Horizontal Duplex - 12" x 10 1/2" 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", one of 4"  
In Holds, &c. Two in each of 3 1/2". In addition two of 3 1/2"  
No. of Bilge Injections One size 10" Connected to condenser, or to circulating pump no 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 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  
That 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 in three pieces shrunk one upon another to half thickness and lapped together to half thickness  
OILERS, &c. (Letter for record (Y)) Manufacturers of Steel Illinois Steel Co. Chicago and Gary  
Total Heating Surface of Boilers 8004 Is Forced Draft fitted yes No. and Description of Boilers 3 Scotch 3SB  
Working Pressure 210 lbs Tested by hydraulic pressure to 315 lbs Date of test Apr. 16, 17, 18, 1919 Nos. of Certificates 117, 118, 119  
Can each boiler be worked separately yes Area of fire grate in each boiler 60.30 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 ft. 9 in. Length 11 ft. 0 in. Material of shell plates steel  
Thickness 1 1/2" Range of tensile strength 60,000 to 72,000 lbs. Are the shell plates welded or flanged flanged Descrip. of riveting: cir. seams DR  
long. seams double butt straps Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10" Lap of plates or width of butt straps 22 1/2"  
Per centages of strength of longitudinal joint 91.2% Working pressure of shell by rules 230.8 lbs Size of manhole in shell 12" x 16"  
Size of compensating ring plugged in No. and Description of Furnaces in each Boiler 3 Morrison Material steel Outside diameter 4' 0"  
Length of plain part top 21" Thickness of plates bottom 21" Description of longitudinal joint butt No. of strengthening rings 11"  
Working pressure of furnace by the rules 222 lbs Combustion chamber plates: Material steel Thickness: Sides 1 1/2" Back 1 1/2" Top 1 1/2" Bottom 1 1/2"  
Pitch of stays to ditto: Sides 4 1/2" x 4 1/2" Back 4 1/2" x 4 1/2" Top 8 1/2" x 8 1/2" If stays are fitted with nuts or riveted heads yes Working pressure by rules 234 lbs  
Material of stays 1 1/2" 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 yes  
Material steel Thickness 1 1/2" Pitch of stays 14 1/2" How are stays secured double nut Working pressure by rules 212 lbs Material of stays steel  
Diameter at smallest part 3 3/8" Area supported by each stay 29.40 sq. in. Working pressure by rules 240.7 lbs Material of Front plates at bottom steel  
Thickness 1 1/2" Material of Lower back plate steel Thickness 1 1/2" 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 1/2" Material of tube plates steel Thickness: Front 1 1/2" Back 1 1/2" Mean pitch of stays 10 1/4"  
Pitch across wide water spaces 13 1/2" Working pressures by rules 244 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 1/2" Number and pitch of stays in each 3 at 8 1/2"  
Working pressure by rules 260 lbs Steam dome: description of joint to shell no % of strength of joint no Diameter no  
Thickness of shell plates Material Description of longitudinal joint no Diameter of rivet holes no Pitch of rivets no  
Working pressure of shell by rules no Crown plates: Thickness no How stayed no

W242-0032



SUPERHEATER. Type *Water waste heat* Date of Approval of Plan \_\_\_\_\_ Tested by Hydraulic Pressure to *630 lbs.*  
Date of Test \_\_\_\_\_ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *yes*  
Diameter of Safe'y 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 + nuts each size rotor bearing, 2 studs + nuts main gear wheel bearing, 2 studs and nuts pinion bearing, 20 of bolts and nuts for each gear casing joint, 20 do. turbine casing joint, 2 thermometers oil cir. system, 1 set bearing bushes each for rotor, gear wheel and pinion shafts, 1/2 set gland packing rings, 2 thrust horseshoes, turbine thrust and adjusting bushes and rings, 1 set feed pump valves, 1 do. bilge pump, 1 set valve spring of each size used, a quantity of bolts, studs + nuts, bars + plates of mild steel, 1 set of coupling bolts each size used, 2 propeller blades, 20 boiler tubes, 40 condenser tubes + 80 ferrules, 1 set of boiler feed check valves.*

The foregoing is a correct description,  
for Columbia River Shipbuilding Corp. Manufacturer.  
*W. B. Shaw Chief Eng.*

*Spare gear complete  
see R. Yk. Ltr 25/3/19.  
JWD  
18/9/19.*

Dates of Survey while building { During progress of work in shops -- *1919 Feb. 21, 24, Mar. 1, 4, 14, 18, 21, 24, Apr. 14, 15, 16, 21, 23, 25, 28.*  
During erection on board vessel --- *May 1, 2, 5, 6, 7, 8, 12, 14, 15, 16.*  
Total No. of visits *25*

Is the approved plan of main boiler forwarded herewith *no*

Dates of Examination of principal parts—Casings *✓* Rotors *✓* Blading *✓* Gearing *✓*  
Rotor shaft *✓* Thrust shaft *Apr. 15* Tunnel shafts *Apr. 15* Screw shaft *Mar. 24* Propeller *Apr. 28*  
Stern tube *Mar. 18* Steam pipes tested *May 5* Engine and boiler seatings *Apr. 23* Engines holding down bolts *Apr. 28*  
Completion of pumping arrangements *Apr. 28* Boilers fired *Apr. 21* Engines tried under steam *May 6*  
Main boiler safety valves adjusted *May 5* 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. *1986 MKBC*  
Material of Tunnel shafts *Steel* Identification Marks on Do. *920 FWT, 1986 MKBC, 2043 MKBC, 2097 MKBC, 1698 MKBC, 2102 MKBC*  
Material of Screw shafts *Steel* Identification Marks on Do. *920 FWT*  
Material of Steam Pipes *C.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 *"West Imboden"*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The geared turbine has been constructed under special survey at Schenectady Ct. Y. The boilers have been built 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 + LMC 5-19 Electric Light be made in the Register Book in the case of this vessel.*

*It is submitted that  
this vessel is eligible for  
THE RECORD + LMC 5-19 FI*

*Geared Steam Turbine Fitted for oil fuel 5-19. FP above 150°*

The amount of Entry Fee ... *\$ 45.00* : When applied for, *May 12 1919*  
Special ... *\$ 245.00* :  
Donkey Boiler Fee ... *\$* :  
Travelling Expenses (if any) *\$ 25.00* :  
When received, *8/6/19*

*J. W. Yates*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *New York MAY 27 1919*

Assigned

*+ L.M.C. 5.19*

*16/6/19*



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Foundation