

25 JAN 1947

Y : C 1-11-42 Essington, Chester, Pa Date First Survey 14 Jan. 42 Last Survey 30 Sept 1942

No. in Survey held at San Francisco Calif. July 1906
Reg. Book. 516 June 1906 1906

(Number of Visits 38) 9306

Robert Pa Bu arhem built Sun 8B 2 D D 60 Yard No. 233 When built 1942

Engines made at Birmingham, La By whom made Hessington & Co Engine No. 700 When made 1880

Shaft Horse Power at Full Power 5000 Owners Yule & Co Port belonging to Philadelphia

Nom Horse Power as per Rule 900 977 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Ys

Trade for which Vessel is intended *Carrying Petroleum in bulk.*

STEAM TURBINE ENGINES, &c.—Description of Engines Cross compound impulse. Reaction

No. of Turbines Astern..... 1 ✓ single reduction geared to propelling shafts. 170. 6) primary pinions to each set of reduction gearing.....
double reduction geared

direct coupled to { Alternating Current Generator _____ phase _____ periods per second } rated _____ Kilowatts _____ Volts at _____ revolutions per minute
Direct Current Generator

for supplying means for driving Propelling Motors Time

4	7	12	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	300	320	340	360	380	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	720	740	760	780	800	820	840	860	880	900	920	940	960	980	1000																																																																																		
1	1.12	1.26	1.41	1.58	1.77	1.98	2.20	2.44	2.70	3.00	3.33	3.70	4.11	4.57	5.08	5.64	6.25	6.91	7.63	8.41	9.25	10.15	11.12	12.16	13.28	14.48	15.76	17.12	18.57	20.11	21.74	23.46	25.27	27.17	29.16	31.34	33.71	36.18	38.75	41.42	44.20	47.08	50.06	53.14	56.32	59.60	63.00	66.51	70.13	73.86	77.70	81.65	85.71	89.88	94.16	98.55	103.05	107.66	112.38	117.21	122.15	127.20	132.36	137.63	143.01	148.50	154.10	159.81	165.63	171.56	177.60	183.75	189.99	196.34	202.79	209.34	215.99	222.74	229.59	236.54	243.59	250.74	257.99	265.34	272.79	280.34	287.99	295.74	303.59	311.54	319.59	327.74	335.99	344.34	352.79	361.34	369.99	378.74	387.59	396.54	405.59	414.74	423.99	433.34	442.79	452.34	461.99	471.74	481.59	491.54	501.59	511.74	521.99	532.34	542.79	553.34	563.99	574.74	585.59	596.54	607.59	618.74	629.99	641.34	652.79	664.34	675.99	687.74	699.59	711.54	723.59	735.74	747.99	760.34	772.79	785.34	797.99	810.74	823.59	836.54	849.59	862.74	875.99	889.34	902.79	916.34	929.99	943.74	957.59	971.54	985.59	1000

H B ✓ | I P | I P ✓ | ASTERN.

[illegible]

Shaft Horse Power at each turbine { H.P. 2500 ^{6175 full} 2750 full } H.P. 5980 ^{6175 full} 1st reduction wheel 540
 { I.P. _____ Revolutions per minute, at full power, of each Turbine Shaft } { I.P. _____ }
 { L.P. 2500 ^{2750 full} 4440 ^{4480 full} } { L.P. 4440 ^{4480 full} main shaft 85 ^{88 normal} }

Rotor Shaft diameter at journals	{ H.P. <u>4</u> I.P. L.P. <u>6 1/4</u> ✓	Pitch Circle Diameter	1st pinion <u>LP 10.884</u>	1st reduction wheel <u>89.710</u>	Width of Face	1st reduction wheel <u>14</u>
			2nd pinion <u>17.694</u>	main wheel <u>112.287</u>		main wheel <u>32</u>
				<u>12 1/2</u>		<u>3.716</u>

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion $15\frac{1}{8}$ 1st reduction wheel $31\frac{7}{8}$
 2nd pinion $31\frac{7}{8}$ main wheel 35 HP 7-60

Flexible Pinion Shafts, diameter { 1st 4
2nd -

Pinion Shafts, diameter at bearings { 1st 4 1/2
2nd 4 1/2

External { 1st 4 1/2
2nd 12 1/2

Internal { 1st 4 1/2
2nd 12 1/2

diameter at bottom of pinion teeth { 1st 4 1/2
2nd 17 1/2

Wheel Shafts, diameter at bearings { 1st $12\frac{1}{2}$ } diameter at wheel shroud, { 1st 86.250 } **Generator Shaft, diameter at bearings** _____
 { main 19 } { main 108.000 } **Propelling Motor Shaft, diameter at bearings** _____

Intermediate Shafts, diameter as per rule..... 15.91" 15.88 normal ✓
as fitted..... 16" ✓

Thrust Shaft, diameter at collars as per rule..... 17.12 normal ✓
as fitted..... 17.6" ✓

Tube Shaft, diameter as per rule.....
 as fitted
 as per rule.....

Screw Shaft, diameter as per rule.....
 as fitted 1 3/4".....
 as per rule.....

Is the ~~shaft~~ screw } shaft fitted with a continuous liner { YES

Bronze Liners, thickness in way of bushes as fitted 1 1/2" & 1 5/8" **Thickness between bushes** as fitted 15/16" **Is the after end of the liner made watertight in the**
propeller boss YES **If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner** ONE LENGTH

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 _____ ✓ Is an approved **Oil Gland** or other appliance fitted at the after end of the tube _____

shaft No If so, state type _____ Length of Bearing in Stern Bush next to and supporting propeller 6' 9 1/2"

Propeller, diameter 19' FT. Pitch 18' 3" No. of Blades 4 State whether Moveable No Total Developed Surface 133.2 square feet.

If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine. _____ Can the H.P. or L.P. Turbine exhaust direct to the _____

Condenser Yes No. of Turbines fitted with astern wheels 1 Feed Pumps _____ No. and size { 2-180 GPM Centrif } 1-Recip 180 GPM

Pumps connected to the Main Bilge Line	No. and size	How driven	
		Turbine driven	Steam
	1- 2 R Bilge Pump 100 GPM	1- G.S. & Ballast 400 GPM.	1- G.S. 200 GPM

Ballast Pumps, No. and size 1-G.S. Ballast 400 G.P.M. 200 G.P.M. Lubricating Oil Pumps, including Spare Pump, No. and size 2-250 G.P.M. Vert. Centrif.

Pumps, No. and size:—In Engine and Boiler Room *ER 30 1/2", 10 2", 10 3" BR 4-2 1/2"* In Pump Room *20 2 1/2", 10 4"*
In Holds, &c. *Cargo space 20 2 1/2" Chain locker 10 2 1/2" Fuel pump room 20 2 1/2" Boatswain stores 2" steam ejector.*

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1-18" Independent Power Pump Direct Suctions to the Engine Room
Bilges, No. and size 1-5" Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes

Are the Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes

Are all **Sea Connections** fitted direct on the skin of the ship Yes Are they fitted with 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 Overboard Discharges 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 pass through the bunkers None How are they protected _____

What pipes pass through the deep tanks None Have they been tested as per rule _____

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times. Yes

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one space to another? Yes

compartment to another yes Is the Shaft Tunnel watertight IV 642 Is it fitted with a watertight door worked from

BOILERS, &c. (Letter for record) Total Heating Surface of Boilers 4887 sq ft
Is Forced Draft fitted Yes No. and Description of Boilers 2 Foster Wheeler W.T. Working Pressure 500 lbs
Is a Report on Main Boilers now forwarded? No If so, is a report now forwarded?

Is a Donkey Boiler fitted? No Is the donkey boiler intended to be used for domestic purposes only

Plans. Are approved plans forwarded herewith for Shafting Main Boilers Auxiliary Boilers Donkey Boilers
(If not state date of approval)

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

Has the spare gear required by the Rules been supplied SPARE GEAR.
State the principal additional spare gear supplied Please see attached list

The foregoing is a correct description, Westinghouse E. & M. Co. J. H. Brown Manufacturer.

Dates of Survey while building During progress of work in shops - Jan 14, March 14, April 21, June 1, 9, Aug 3, 6, 8, 29, 1942.
During erection on board vessel - June 8, 10, 11, 24, 25, July 6, 8, 10, 16, Aug 6, 7, 14, Sept 3, 21, 24, 27, 29, 30, 1942.
Total No. of visits 28.

Dates of Examination of principal parts - Casings 3 Aug Rotors 3 Aug Blading 3 Aug Gearing 6 Aug
Wheel shaft 6 Aug Thrust shaft Intermediate shafts 18 June Tube shaft Screw shaft 9 June

Propeller 9 June Stern tube 24 June Engine and boiler seatings 8 July Engine holding down bolts 3 Sept
Completion of fitting sea connections 6 July Completion of pumping arrangements 24 Sept Boilers fixed 14 Aug Engines tried under steam 29 Sept

Main boiler safety valves adjusted 24 Sept Thickness of adjusting washers Locknuts

Rotor shaft, Material and tensile strength O H. Steel 89750 Identification Mark 547 F.O.

Flexible Pinion Shaft, Material and tensile strength Identification Mark

Pinion shaft, Material and tensile strength OH Steel . HP 114000 lbs LP 107500 lbs Identification Mark 473 WHR 6732 ON

1st Reduction Wheel Shaft, Material and tensile strength OH Steel . 107000 lbs. 118500 lbs Identification Mark 544 . 545 ATG

Wheel shaft, Material O H Steel Identification Mark 2001 HBC Thrust shaft, Material Identification Mark

Intermediate shafts, Material OH Steel Identification Marks 6693, 6697 ON Tube shaft, Material Identification Marks

Screw shaft, Material OH Steel Identification Marks 6733 ON 6858 ON Steam Pipes, Material O H Steel Test pressure 11500 lbs

Date of test July 10, Aug 6, Sept 21, 1942 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 the Rules for the use of oil as fuel been complied with Yes

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo If so, have the requirements of the Rules been complied with

If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with

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.) This installation has been constructed under Special Survey, and in accordance with the approved plans, the workmanship & materials are good. The installation has been tried out under full power & found satisfactory. It has been satisfactorily installed on board the vessel, and in our opinion is eligible to receive the record of +LMC 9.42.

The amount of Entry Fee ... \$ 30.00
Special As agreed 600.00
Donkey Boiler Fee ... £ :
Travelling Expenses (if any) \$ 28.00
When applied for, 12 Dec 42
When received, 19

Committee's Minute

Assigned +LMC - 9-42

M. W. Penham
Engineer Surveyor to Lloyd's Register of Shipping.



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