

Rpt. 4a.

REPORT ON STEAM TURBINE MACHINERY. No. 9446

Received at London Office 6 MAY 1950

Date of writing Report 6th April, 1950 When handed in at Local Office 6th April, 1950 Port of PHILADELPHIA, PA.
 No. in Survey held at Chester, Pa. Date, First Survey 13th Aug. '49 Last Survey 24th March, 1950
 Reg. Book on the S.S. "SOVAC RADIANT" (Number of Visits 31)

Tons { Gross 17597.94
 Net -
 Built at Chester, Pa. By whom built Sun SB & DD Co. Yard No. 576 When built 1949-50
 Engines made at Trenton, New Jersey By whom made DeLaval Steam Turbine Co. Engine No. 650149 When made 1949-50
 Boilers made at Barberton, Ohio By whom made Babcock & Wilcox Co. Boiler No. MB-4344-1 & 2 When made 1949
 Shaft Horse Power at Full Power 12,500 ^{13750 max.} Owners Tankers Navigation Co. Port belonging to Panama
 Nom. Horse Power as per Rule 3096 = MN ✓ Is Refrigerating Machinery fitted for cargo purposes - Is Electric Light fitted Yes
 Trade for which Vessel is intended Foreign

STEAM TURBINE ENGINES, &c. Description of Engines.

No. of Turbines Ahead 2 ~~xxxxxx~~ } to 1 propelling shafts. No. of primary pinions to each set of reduction gearing 2
 Astern 1 ~~xxxxxx~~ }
 direct coupled to { Alternating Current Generator phase periods per second } rated Kilowatts Volts at revolutions per minute;
 Direct Current Generator }
 for supplying power for driving Propelling Motors, Type
 rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE BLADING.	H. P.			K&K			L. P.			ASTERN in L. P.		
	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.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	.800"	21.750"	2				1.140"	40.346"	1	1.800"	43.550"	2
2ND "	.620"	21.306"	1				1.540"	41.146"	1	6.000"	44.066"	1
3RD "	.710"	21.486"	1				2.120"	42.390"	1		51.126"	1
4TH "	.760"	21.586"	1				2.880"	43.910"	1			
5TH "	.880"	21.826"	1				4.200"	46.576"	1			
6TH "	.990"	22.046"	1				6.450"	50.826"	1			
7TH "	1.140"	22.346"	1				9.950"	57.576"	1			
8TH "	1.210"	22.486"	1				12.700"	63.100"	1			
9TH "	1.410"	22.886"	1									
10TH "	1.720"	23.506"	1									
11TH "												
12TH "												

Shaft Horse Power at each turbine H.P. 6250 ✓ ~~xxxxxx~~ L.P. 6250 ✓
 Revolutions per minute, at full power, of each Turbine Shaft H.P. 5644 ✓ 1st reduction wheel 733
~~xxxxxx~~ L.P. 3546 ✓ main shaft ^{revs} 112 ✓

Rotor Shaft diameter at journals H.P. 5" Pitch Circle Diameter { 1st pinion 9.760" H.P. reduction wheel 69.461" H.P. 64.743" L.P. }
 L.P. 8" { 2nd pinion 21.75" main wheel 154.0" L.P. Face } { 1st reduction wheel 18-3/4" }
 { main wheel 35" }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 14-1/8" } 1st reduction wheel 14-5/8"
 { 2nd pinion 25-1/4" } main wheel 28-3/4"

Flexible Pinion Shafts, diameter at bearings { 1st 6" H.P. } External { 16" } diameter at bottom of pinion teeth { 1st 9.330" H.P. }
 { 2nd 7" L.P. } Internal { 10-31/32" } { 2nd 21.109" L.P. }

Wheel Shafts, diameter at bearings { 1st 10" } diameter at wheel shroud, { 1st 12" } Generator Shaft, diameter at bearings
 main 22" ✓ { main 27" } Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter as per rule 19.66" Thrust Shaft, diameter at collars as per rule Tube Shaft, diameter as per rule None
 as fitted 19-3/4" ✓ as fitted 13-3/4" as fitted

Screw Shaft, diameter as per rule 21.32" Is the screw shaft fitted with a continuous liner { yes ✓ } as per rule .977"
 as fitted 22" ✓ { screw } as fitted 1-1/8"

Thickness between bushes as per rule .733 Is the after end of the liner made watertight in the propeller boss yes ✓
 as fitted 27/32" Made in one length. If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner -

If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with 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 - Length of Bearing in Stern Bush next to and supporting propeller 8'3" ✓

Propeller, diameter 20' ✓ Pitch 16'10" at 7R No. of Blades 4 State whether Moveable No Total Developed Surface 173 sq. ft. square feet.
 If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes Can the H.P. K&K Turbine exhaust direct to the Condenser Yes

No. of Turbines fitted with astern wheels 1 Feed Pumps { No. and size 3 - 350 G.P.M. & 1 30 G.P.M. (emergency) }
 { How driven Turbine Motor }

Pumps connected to the Main Bilge Line { No. and size 2 Bilge (E.R.) 200 G.P.M. - 1 Gen. Serv. 400 G.P.M. }
 { How driven Motor Motor }

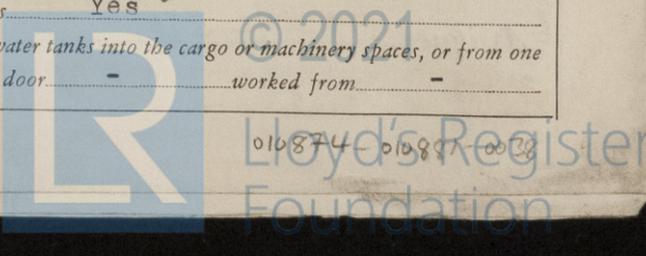
Ballast Pumps, No. and size 1 Ford, P.R. - 400 G.P.M. Lubricating Oil Pumps, including Spare Pump, No. and size 2 - 350 G.P.M.
 1 E.R. (Gen. Serv. P.) 400 G.P.M. Are two independent means arranged for circulating water through the Oil Cooler yes ✓ Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size: - In Engine and Boiler Room 6 - 3" I.P.S.

In Holds, &c. Hold 2 - 2-1/2" I.P.S. - Ford. Cofferdam 1 - 4"
 Main Water Circulating Pump Direct Bilge Suctions, No. and size 1 - 16" ✓ Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2 - 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 No - valves ✓
 What pipes pass through the bunkers - How are they protected - are fitted.

What pipes pass through the deep tanks Fore Peak Ballast Suction ✓ Have they been tested as per rule 7 ✓
 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 compartment to another. yes ✓ Is the Shaft Tunnel watertight - Is it fitted with a watertight door - worked from -



BOILERS, &c.— (Letter for record) Total Heating Surface of Boilers 18720 lbs. per sq. in. ^{29 ft.}
 Is Forced Draft fitted Yes No. and Description of Boilers 2 Watertube Working Pressure 685 lbs.
 Is a Report on Main Boilers now forwarded? Yes
 Is ^{a Donkey} Boiler fitted? No If so, is a report now forwarded? -
 Plans. Are approved plans forwarded herewith for Shafting No Main Boilers No Auxiliary Boilers - Donkey Boilers -
 (If not state date of approval)
 Superheaters No General Pumping Arrangements No Oil Fuel Burning Arrangements No
 Spare Gear. State the articles supplied:— As required by the Rules.
 Additional:- LP & HP 1st. red. pinions, HP & LP quill shafts and coupling hubs.

DELAVAL STEAM TURBINE COMPANY
 VICE PRESIDENT AND EXECUTIVE ENGINEER

W. P. Dams

Manufacturer

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops - - } 30 Aug., 17 Oct., 3 Nov., 14th Nov., 1, 7, 10, 13, 15, and 19th December, 1949
 { During erection on board vessel - - } 14 Nov., 6, 12, 14, 21 Dec. 1949; 9, 11, 13, 18, 23, 31 Jan., 6, 28 Feb. 2, 3, 6, 7, 10, 22, 23, 24 March, 1950
 Total No. of visits 31

Dates of Examination of principal parts: Casings 7, 15 Dec., 1949 Rotors 7, 15 Dec., 1949 Blading 7, 15, Dec. 1949 Gearing 19 Dec., 1949
 Collar 19 Dec. '49 Thrust shaft 19 Dec. '49 Intermediate shafts 9th Jan. '50 Tube shaft - Screw shaft 6th Dec. 1949
 Wheel shaft 19th Dec. '49 Propeller 6th Dec. '49 Stern tube 18 Jan. '50 Engine and boiler seatings 16th Jan. '50 Engine holding down bolts 10th Mar. '50
 Completion of pumping arrangements 22 Mar., 1950 Boilers fixed 10 Feb. '50 Engines tried under steam 23rd March, 1950
 Main boiler safety valves adjusted 23rd Mar. '50 Thickness of adjusting washers Locknuts

Rotor shaft, Material and tensile strength O.H. Steel 101000, 104000, 99,000 Identification Mark 5927 CC
 Quill ~~XXXXXX~~ Shaft, Material and tensile strength O.H. Steel HP 112000, LP 110500 Identification Mark 6391 SS 6393 SS
 LP 1st red. 115000 LP 2nd red. 110500 6389 SS 7658 WF
 Pinion shaft, Material and tensile strength O.H. Steel HP " " 109500 HP " 112500 Identification Mark 6460 SS 7659 WF
 1st Reduction Wheel Shaft, Material and tensile strength O.H. Steel HP 82500 LP 83500 Identification Mark 3678-2 RK 3753
 Wheel shaft, Material O.H. Steel Identification Mark 1167 JMG Thrust shaft, Material - Identification Mark
 Intermediate shafts, Material O.H. Steel Identification Marks 9335, 9360 RK Serv. 6003 SS Tube shaft, Material - Identification Marks
 Screw shaft, Material O.H. Steel Identification Marks Spare 6002 SS Steam Pipes, Material O.H. Steel Test pressure 1650 lbs.

Date of test From 13 Jan. to 10th March, 1950 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 -
 Is this machinery a duplicate of a previous case Yes If so, state name of vessel Sun Hulls 570-576

General Remarks (State quality of workmanship, opinions as to class, &c.) The machinery has been satisfactorily installed on board the vessel, tried out under full power and found satisfactory. In our opinion, the installation is entitled to receive the record of +LMC 3,50, fitted for oil fuel 3,50 F.P. above 150° F.
 This machinery has been constructed under special survey and in accordance with the approved plans, the workmanship and materials are good.

The amount of Entry Fee	£ 380.00	When applied for,
Special	£	11th Apr. 1950
Donkey Boiler Fee	£	per F.A.G.
Travelling Expenses (if any)	£ 65.00	When received,
		19

W. P. Dams
 Engineer Surveyor to Lloyd's Register of Shipping.

NEW YORK APR 19 1950

Committee's Minute
 Assigned + LMC 3,50

Certificate (if required) to be sent to
 For S.S.O.F. See

