

REPORT ON STEAM TURBINE MACHINERY. No. 9384

Rpt. 4a.

Received at London Office

30 JAN 1950

Date of writing Report 23rd Nov. 1949 When handed in at Local Office 23rd Nov. 1949 Port of PHILADELPHIA, PA.
 No. in Survey held at Chester, Pa. Date, First Survey 1st Sept. Last Survey 23rd November, 1949
 Reg. Book on the S.S. "SOVAC ASTRAL" (Number of Visits 16) Tons { Gross 17597.94 Net - }
 Built at Chester, Pa. By whom built Sun S. B. & D. D. Co. Yard No. 572 When built 1949
 Engines made at Trenton, N. J. By whom made DeLaval Steam Turbine Co. Engine No. 650145 When made "
 Boilers made at Barberton, Ohio By whom made Babcock & Wilcox Boiler No. MB-4340 When made "
 Shaft Horse Power at Full Power 12,500 Owners Tankers Navigation Corp. Port belonging to Panama
 Nom. Horse Power as per Rule 3096 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
 Trade for which Vessel is intended Foreign

STEAM TURBINE ENGINES, &c.—Description of Engines.

No. of Turbines 2 Ahead 1 XXXXXX } to 1 propelling shafts. No. of primary pinions to each set of reduction gearing 2
1 Astern 1 XXXXXX }
 direct coupled to { Alternating Current Generator phase periods per second } rated Kilowatts Volts at revolutions per minute;
 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.			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.
1ST EXPANSION	1.230"	21.750"	2				1.200"	43.350"	2
2ND	.620"	21.306"	1				6.000"	51.126"	1
3RD	.710"	21.486"	1						
4TH	.760"	21.586"	1						
5TH	.880"	21.826"	1						
6TH	.990"	22.046"	1						
7TH	1.140"	22.346"	1						
8TH	1.210"	22.486"	1						
9TH	1.410"	22.886"	1						
10TH	1.720"	23.506"	1						
11TH									
12TH									

Shaft Horse Power at each turbine { H.P. 6250 ✓ L.P. 6250 ✓ } Revolutions per minute, at full power, of each Turbine Shaft { H.P. 5644 ✓ L.P. 3546 ✓ }
 Rotor Shaft diameter at journals { H.P. 5" L.P. 8" } Pitch Circle Diameter { 1st pinion 14.478" 2nd pinion 21.75" } 1st reduction wheel 64.743" main wheel 154.0" Width of 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" 2nd pinion 25-1/4" } 1st reduction wheel 14-5/8" main wheel 28-3/4"
 Flexible Pinion Shafts, diameter at bearings { 1st 10" 2nd 12" } Pinion Shafts, diameter at bearings { 1st 12" 2nd 16" } External Internal { 1st 7" 2nd 10-31/32" } diameter at bottom of pinion teeth { 1st 14.048" 2nd 21.109" }
 Wheel Shafts, diameter at bearings { 1st 10" 2nd 12" } diameter at wheel shroud, { 1st 12" 2nd 16" } Generator Shaft, diameter at bearings { 1st 12" 2nd 16" } Propelling Motor Shaft, diameter at bearings { 1st 12" 2nd 16" }
 Intermediate Shafts, diameter as per rule 19.66" as fitted 19-3/4" Thrust Shaft, diameter at collars as per rule 13-3/4" as fitted 13-3/4" Tube Shaft, diameter as per rule None as fitted
 Screw Shaft, diameter as per rule 21.32" as fitted 22" Is the screw shaft fitted with a continuous liner { Yes } Bronze Liners, thickness in way of bushes as per rule .977" as fitted 1-1/8"
 Thickness between bushes as per rule 733 as fitted 27/32" 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 { Yes } Made in one length
 or other appliance fitted at the after end of the tube shaft { Yes } 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 { Yes } If two liners are fitted, is the shaft lapped or protected between the liners { Yes } Is an approved Oil Gland
 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. Turbine exhaust direct to the Condenser { Yes } No. and size 3-350 G.P.M. & 1-30 G.P.M. (Emergency)
 Condenser Yes No. of Turbines fitted with astern wheels 1 Feed Pumps { 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. } Motor
 Ballast Pumps, No. and size 1-Ford E.R. - 400 G.P.M. Lubricating Oil Pumps, including Spare Pump, No. and size 2-350 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" Independent Power Pump Direct Suctions to the Engine Room
 Main Water Circulating Pump Direct Bilge Suctions, No. and size 1-16" Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes { Yes }
 Bilges, No. and size 2-5" 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 { Yes } How are they protected { Yes }
 What pipes pass through the deep tanks { Yes } Fore Peak Ballast Suction Have they been tested as per rule { Yes }
 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 { Yes } Is it fitted with a watertight door { Yes }

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BOILERS, &c.— (Letter for record)

Total Heating Surface of Boilers 18720 lbs. per sq. in.
 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? -
 { an Auxiliary }
 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: LP & HP 1st red. pinions, HP & LP quill shafts & coupling hubs.

DELAVAL STEAM TURBINE COMPANY

VICE PRESIDENT AND
EXECUTIVE ENGINEER

Manufacturer

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops - } March 17, April 18, 20, May 9, June 9, 14, 16, Aug. 4 & 5, 1949.
 { During erection on board vessel - } Sept. 1, 27, 28, 29, Oct. 11, 14, 21, 24, 27, Nov. 2, 9, 15, 16, 21, 22, 23, 1949.
 Total No. of visits 25

Dates of Examination of principal parts—Casings 16th June Rotors 16th June Blading 16 June Gearing 14 June
 Wheel shaft 14th June Collar 14th June Thrust shaft 14th June Intermediate shafts 28th Feb., '49 Tube shaft - Screw shaft 21st Oct.
 Propeller 21st Oct. Stern tube 1st Sept. Engine and boiler seatings 22nd Sept. Engine holding down bolts 27th Oct.
 Completion of pumping arrangements 15th Nov. Boilers fixed 17th Oct. Engines tried under steam 22nd Nov.
 Main boiler safety valves adjusted 14th Nov. Thickness of adjusting washers Locknuts

Rotor shaft, Material and tensile strength O.H. Steel 106000 L.P. 83750 Identification Mark 5919 CC 1166 JMC
 Quill shaft, Material and tensile strength O.H. Steel HP 97500 LP 95000 Identification Mark 7109 WHR 7108 WHI
 Pinion shaft, Material and tensile strength O.H. Steel HP 114000 LP 2nd red. 106750 Identification Mark 8182 JKH 1198 JMC
 1st Reduction Wheel Shaft, Material and tensile strength O.H. Steel HP 87000 LP 86000 Identification Mark 6211 SS 1205 JMC
 Wheel shaft, Material O.H. Steel Identification Mark 3765 RK Thrust shaft, Material - Identification Mark -
 Intermediate shafts, Material O.H. Steel Identification Marks 3864 9161 RK Tube shaft, Material - Identification Marks -
 Screw shaft, Material O.H. Steel Identification Marks Serv. 6195 SS Spare 6410 SS Steam Pipes, Material O.H. Steel Test pressure

Date of test Various from 5th Aug. to 27th Oct., 1949 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 No 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 S.S. SOVAC ALADDIN - Sun hull 571

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 11,49, fitted for oil fuel 11,49 F.P. above 150° F. This machinery has been constructed under S.S. and in accordance with the approved plans, the workmanship and materials are good.

The amount of Entry Fee ... \$380.00 : When applied for, 1st Dec, 49
 Special ... £ : per F.A.G.
 Donkey Boiler Fee ... £ : When received,
 Travelling Expenses (if any) £ 70.00 : 19

Committee's Minute NEW YORK JAN 4 - 1950
 Assigned + LMC 11.49
 Note CL



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