

REPORT ON STEAM TURBINE MACHINERY.

No. 9433

11 APR 1950

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Date of writing Report 13th March, 1950 When handed in at Local Office 13th March, 1950 Port of PHILADELPHIA, PA.

No. in Survey held at Chester, Pa. Date, First Survey 12th July, 1949 Last Survey 22nd February, 1950

Reg. Book on the S.S. "SOVAC DAYLIGHT" (Number of Visits 32)

Gross 17597.94 Tons Net -

Built at Chester, Pa. By whom built SunS.B. & D.D.Co. Yard No. 575 When built 1949-50

Engines made at Trenton, New Jersey By whom made DeLaval Steam Turbine Co. Engine No. 650148 When made 1949

Boilers made at Barberton, Ohio By whom made Babcock & Wilcox Co. Boiler No. MB-4343-1 & 2 When made "

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 ²⁸¹⁸ 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 Double Reduction Turbines

No. of Turbines Ahead 2 ~~Direct coupled~~ ^{single reduction geared} Astern 1 ~~double reduction geared No. of propelling shafts 1 No. of primary pinions to each set of reduction gearing 2~~

Direct coupled to Alternating Current Generator phase periods per second Direct Current Generator rated Kilowatts Volts at revolutions per minute;

or 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 LOADING.	H. P.			I. 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.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	1.230"	21.750"	2				1.140"	40.346"	1	1.200"	43.550"	2
2ND "	.620"	21.306"	1				1.540"	41.146"	1	6.000"	51.126"	1
3RD "	.710"	21.486"	1				2.120"	42.390"	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 [✓] ~~XXXXXX~~ Revolutions per minute, at full power, of each Turbine Shaft H.P. 5" [✓] ~~XXXXXX~~ L.P. 8" [✓] ~~XXXXXX~~ 1st reduction wheel 733 ²⁹³ main shaft normal 112 ^{max 115.7}

Motor Shaft diameter at journals H.P. 5" [✓] ~~XXXXXX~~ L.P. 8" [✓] ~~XXXXXX~~ Pitch Circle Diameter 1st pinion 14.478" [✓] ~~XXXXXX~~ 2nd pinion 21.75" [✓] ~~XXXXXX~~ 1st reduction wheel 64.743" [✓] ~~XXXXXX~~ main wheel 154.0" [✓] ~~XXXXXX~~ Width of Face 1st reduction wheel 18-3/4" [✓] ~~XXXXXX~~ main wheel 35" [✓] ~~XXXXXX~~

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

Exible Pinion Shafts, diameter at bearings External 1st 7" [✓] ~~XXXXXX~~ 2nd 10-31/32" [✓] ~~XXXXXX~~ Internal 1st - [✓] ~~XXXXXX~~ 2nd 10-31/32" [✓] ~~XXXXXX~~ Pinion Shafts, diameter at bearings 1st 10" [✓] ~~XXXXXX~~ 2nd 22" [✓] ~~XXXXXX~~ diameter at wheel shroud, 1st 12" [✓] ~~XXXXXX~~ 2nd 27" [✓] ~~XXXXXX~~ Generator Shaft, diameter at bearings 9.330" [✓] ~~XXXXXX~~ 14.048" [✓] ~~XXXXXX~~ 21.109" [✓] ~~XXXXXX~~

Wheel Shafts, diameter at bearings 1st 10" [✓] ~~XXXXXX~~ 2nd 22" [✓] ~~XXXXXX~~ diameter at wheel shroud, 1st 12" [✓] ~~XXXXXX~~ 2nd 27" [✓] ~~XXXXXX~~ Propelling Motor Shaft, diameter at bearings 19.66" [✓] ~~XXXXXX~~ 19-3/4" [✓] ~~XXXXXX~~

Intermediate Shafts, diameter as per rule 21.32" [✓] ~~XXXXXX~~ as fitted 22" [✓] ~~XXXXXX~~ Thrust Shaft, diameter at collars as per rule 13-3/4" [✓] ~~XXXXXX~~ as fitted 13-3/4" [✓] ~~XXXXXX~~ Tube Shaft, diameter as per rule none [✓] ~~XXXXXX~~ as fitted none [✓] ~~XXXXXX~~

Propeller Shaft, diameter as per rule 21.32" [✓] ~~XXXXXX~~ as fitted 22" [✓] ~~XXXXXX~~ Is the screw shaft fitted with a continuous liner yes [✓] ~~XXXXXX~~ Bronze Liners, thickness in way of bushes as per rule 1-9/77" [✓] ~~XXXXXX~~ as fitted 1-1/8" [✓] ~~XXXXXX~~

Thickness between bushes as per rule .733 [✓] ~~XXXXXX~~ as fitted 27/32" [✓] ~~XXXXXX~~ Is the after end of the liner made watertight in the propeller boss yes [✓] ~~XXXXXX~~ If the liner is in more than one length are the junctions made in one length yes [✓] ~~XXXXXX~~

Is 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 other appliance fitted at the after end of the tube shaft. - Length of Bearing in Stern Bush next to and supporting propeller 8'3" [✓] ~~XXXXXX~~

Propeller, diameter 20' [✓] ~~XXXXXX~~ Pitch variable [✓] ~~XXXXXX~~ No. of Blades 4 [✓] ~~XXXXXX~~ State whether Moveable. no [✓] ~~XXXXXX~~ Total Developed Surface 173 sq.ft. [✓] ~~XXXXXX~~

Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes [✓] ~~XXXXXX~~ Can the H.P. ~~XXXXXX~~ Turbine exhaust direct to the condenser. Yes [✓] ~~XXXXXX~~ No. of Turbines fitted with astern wheels 1 [✓] ~~XXXXXX~~ Feed Pumps No. and size 3 - 350 G.P.M. & 1 - 30 G.P.M. (Emergency) [✓] ~~XXXXXX~~

How driven Turbine [✓] ~~XXXXXX~~ Motor [✓] ~~XXXXXX~~

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. [✓] ~~XXXXXX~~ How driven Motor [✓] ~~XXXXXX~~

Fast Pumps, No. and size 1 Ford P.P. - 400 G.P.M. [✓] ~~XXXXXX 1 E.R. (Gen.Serv.P.) - 400 G.P.M. [✓] ~~XXXXXX~~ Lubricating Oil Pumps, including Spare Pump, No. and size 2 - 350 G.P.M. [✓] ~~XXXXXX~~~~

Are two independent means arranged for circulating water through the Oil Cooler yes [✓] ~~XXXXXX~~ Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge pumps, No. and size:—In Engine and Boiler Room 6 - 3" I.P.S. [✓] ~~XXXXXX~~

Holds, &c. Hold 2 - 2 1/2" I.P.S. - Ford Cofferdam - 1 - 4" [✓] ~~XXXXXX~~

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1 - 16" [✓] ~~XXXXXX~~ Independent Power Pump Direct Suctions to the Engine Room 2 - 5" [✓] ~~XXXXXX~~

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes yes [✓] ~~XXXXXX~~

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 [✓] ~~XXXXXX~~

Are all Sea Connections fitted direct on the skin of the ship yes [✓] ~~XXXXXX~~ Are they fitted with Valves or Cocks Valves [✓] ~~XXXXXX~~

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes [✓] ~~XXXXXX~~ Are the Overboard Discharges above or below the deep water line below [✓] ~~XXXXXX~~

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel yes [✓] ~~XXXXXX~~ Are the Blow Off Cocks fitted with a spigot and brass covering plate no - valves are fitted [✓] ~~XXXXXX~~

Are the pipes pass through the bunkers - How are they protected -

Are the pipes pass through the deep tanks Fore Peak Ballast Suction [✓] ~~XXXXXX~~ Have they been tested as per rule yes [✓] ~~XXXXXX~~

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times. [✓] ~~XXXXXX~~

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 [✓] ~~XXXXXX~~ 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.)
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:— As required by Rules. Additional Spare Gear as follows:—
L.P. & H.P. 1st Red. Pinions, H.P. & L.P. Quill Shafts and coupling hubs.

DELAVAL STEAM TURBINE COMPANY
VICE PRESIDENT &
EXECUTIVE ENGINEER

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops - - } July 12, 15, Aug. 15, 29, Sept. 14, 19, Oct. 13, 17, Nov. 9, 14, 17, 1949
{ During erection on board vessel - - } Oct. 5, 19, Nov. 1, 9, Dec. 5, 20, 28, 29, 30, 1949 - Jan. 4, 9, 11, 19, 23, 31, Feb. 7, 9, 14, 20, 21, 2
Total No. of visits 32
Dates of Examination of principal parts—Casings 14 & 17 Oct. '49 Rotors 14 & 17 Oct. '49 Blading 14 & 17 Oct. '49 Gearing 14 Nov. '49
Wheel shaft 14 Nov. '49 Thrust collar 14 Nov. '49 Intermediate shafts Feb. 7, 1950 Tube shaft - Screw shaft 1st Nov. '49
Propeller 1 Nov. 1949 Stern tube 5 Dec. 1950 Engine and boiler seatings Engine holding down bolts
Completion of pumping arrangements Boilers fixed Engines tried under steam 21 Feb., 1950
Main boiler safety valves adjusted 13 Feb. '1950 Thickness of adjusting washers Locknuts
Rotor shaft, Material and tensile strength O.H. Steel 100000 Identification Mark 5920 C.C.
Quill ~~100000~~ Shaft, Material and tensile strength O.H. Steel H.P. 103500 L.P. 101000 Identification Mark 6383 S.S. 6381
LP 1st red. 113500 LP 2nd red. 124850 6395 SS 1207
Pinion shaft, Material and tensile strength O.H. Steel HP " 114000 HP " 106000 Identification Mark 6386 SS 1232
1st Reduction Wheel Shaft, Material and tensile strength OH Steel HP 83500 LP 82500 Identification Mark 3753-2 3678-1
Wheel shaft, Material O.H. Steel Identification Mark 1165 JMG Thrust shaft, Material - Identification Mark -
Intermediate shafts, Material O.H. Steel Identification Mark 9282 - 9240 HK Tube shaft, Material - Identification Marks -
Screw shaft, Material O.H. Steel Identification Mark Service 6514 SS Spare 6515 SS Steam Pipes, Material O.H. Steel Test pressure 1650 lbs.
Date of test Various from 29th Sept. 27th Oct. 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 S.S. "SOVAC COMET" - Sun Hull 5

General Remarks (State quality of workmanship, opinions as to class, &c.) The machinery has been satisfactorily installed board the vessel, tried out under full power and found satisfactory. In our opinion, the installation is entitled to receive the record of +LMC 2,50, fitted for oil fuel 2,50 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,
Special £ : 1 march 1950
Donkey Boiler Fee £ : per F.A.G.
Travelling Expenses (if any) £ 70.00 : When received,
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Engine Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned + Lmc 2,50

NEW YORK MAR 22, 1950



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Lloyd's Register
Foundation