

# REPORT ON STEAM TURBINE MACHINERY. No. 9412

Received at London Office **3 APR 1950**

Writing Report 9th Feb. 1950 When handed in at Local Office 9th Feb. 1950 Port of **PHILADELPHIA, PA.**  
 Survey held at **Chester, Pa.** Date, First Survey **3rd May, 1949** Last Survey **26th Jan., 1950.**  
 Book (Number of Visits **28**) Tons **Gross 17597.94**  
 on the **S.S. "SOVAC COMET"**  
 at **Chester, Pa.** By whom built **Sun S.B. & D.D. Co.** Yard No. **574** When built **1949-50**  
 Engines made at **Trenton, New Jersey** By whom made **DeLaval Steam Turbine Co.** Engine No. **650147** When made **1949**  
 Boilers made at **Barberton, Ohio** By whom made **Babcock & Wilcox Co.** Boiler No. **MB-4342** When made **"**  
 Horse Power at Full Power **12,500** Owners **Tankers Navigation Co.** Port belonging to **Panama**  
 Horse Power as per Rule **3096** Is Refrigerating Machinery fitted for cargo purposes **-** Is Electric Light fitted **Yes**  
 for which Vessel is intended **Foreign**

## STEAM TURBINE ENGINES, &c.—Description of Engines Double Reduction Gear Turbine

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

TURBINE LOADING.	H. P.			<del>XXXX</del>			L. P.			ASTERN in L.P. Turbine		
	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.
EXPANSION	.800"	21.750"	2				1.140"	40.346"	1	.800"	43.550"	2
"	1.230"	22.316"	1				1.540"	41.146"	1	1.200"	44.066"	1
"	.620"	21.306"	1				2.120"	42.390"	1	6.000"	51.126"	1
"	.710"	21.486"	1				2.880"	43.910"	1			
"	.760"	21.586"	1				4.200"	46.576"	1			
"	.880"	21.826"	1				6.450"	50.826"	1			
"	.990"	22.046"	1				9.950"	57.576"	1			
"	1.140"	22.346"	1				12.700"	63.100"	1			
"	1.210"	22.486"	1									
"	1.410"	22.886"	1									
"	1.720"	23.506"	1									

Horse Power at each turbine **H.P. 6250** ~~XXXXXX~~ **Revolutions per minute, at full power, of each Turbine Shaft** **5644** ~~XXXXXX~~ 1st reduction wheel **733**  
 Shaft diameter at journals **H.P. 5"** ~~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~~ 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~~  
 Pinion Shafts, diameter at bearings { 1st **6"** ~~XXXXXX~~ 2nd **7"** ~~XXXXXX~~ External { 1st **16"** ~~XXXXXX~~ 2nd **10-31/32"** ~~XXXXXX~~ Internal { 1st **14.048"** ~~XXXXXX~~ 2nd **21.109"** ~~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  
 Propelling Motor Shaft, diameter at bearings  
 Intermediate Shafts, diameter as per rule **19.66"** ~~XXXXXX~~ as fitted **19-3/4"** ~~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 { ~~XXXXXX~~ } shaft fitted with a continuous liner { ~~XXXXXX~~ } **yes** ~~XXXXXX~~ Bronze Liners, thickness in way of bushes as per rule **.977"** ~~XXXXXX~~ as fitted **1-1/8"** ~~XXXXXX~~  
 Clearance 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  
 by fusion through the whole thickness of the liner **Made in one length** ~~XXXXXX~~ If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a  
 material insoluble in water and non-corrosive **-** ~~XXXXXX~~ If two liners are fitted, is the shaft lapped or protected between the liners **-** ~~XXXXXX~~ Is an approved Oil Gland  
 or appliance fitted at the after end of the tube shaft **-** ~~XXXXXX~~ Length of Bearing in Stern Bush next to and supporting propeller **8'3"** ~~XXXXXX~~  
 Propeller, diameter **20'** ~~XXXXXX~~ Pitch **16'10"** ~~XXXXXX~~ No. of Blades **four** ~~XXXXXX~~ State whether Moveable **no** ~~XXXXXX~~ Total Developed Surface **173** ~~XXXXXX~~ square feet.  
 Angle 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 F.P.M. (Emergency)** ~~XXXXXX~~  
 How driven **Turbine** ~~XXXXXX~~ 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.** ~~XXXXXX~~  
 How driven **Motor** ~~XXXXXX~~ Motor  
 Bilge Pumps, No. and size **1 Ford F.P.R. - 400 G.P.M.** ~~XXXXXX~~ Lubricating Oil Pumps, including Spare Pump, No. and size **2 - 350 G.P.M.** ~~XXXXXX~~  
 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~~  
 Water Circulating Pump Direct Bilge Suctions, No. and size **1 - 16"** ~~XXXXXX~~ Independent Power Pump Direct Suctions to the Engine Room  
 pumps, No. and size **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~~  
 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 **"** ~~XXXXXX~~ Are the Blow Off Cocks fitted with a spigot and brass covering plate **no** ~~XXXXXX~~ Valves  
 Are they fitted **are fitted.** ~~XXXXXX~~  
 How are they protected **-** ~~XXXXXX~~  
 Are pipes pass through the deep tanks **Fore peak ballast suction** ~~XXXXXX~~ Have they been tested as per rule **-** ~~XXXXXX~~  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times **yes** ~~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 **-** ~~XXXXXX~~ Is it fitted with a watertight door **-** ~~XXXXXX~~ worked from **-** ~~XXXXXX~~

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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  
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 req'd by Rules. ✓

Additional to Rule Requirement:—

LP & HP 1st red. pinions, HP & LP 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 - - } May 3, June 21, July 6, 12, 15, Aug. 15, 16, Sept. 7, 14, 19  
{ During erection on board vessel - - - } Sept. 26, Oct. 27, Nov. 1, 14, 28, Dec. 1, 9, 13, 20, 28, 30, 1949 - Jan. 6, 10, 12, 18, 24, 25,  
Total No. of visits 29

Dates of Examination of principal parts—Casings Sept. 14, 1949 Rotors Sept. 14, 1949 Blading Sept. 14, 1949 Gearing Sep. 1  
collar  
Wheel shaft Sep. 19, 1949 Thrust shaft Sep. 19, 1949 Intermediate shafts Mar. 3., 1949 Tube shaft - Screw shaft 26 Sep

Propeller " 26, 1949 Stern tube Nov. 14, 1949 Engine and boiler seatings Nov. 1, 1950 Engine holding down bolts Dec. 30, 19

Completion of pumping arrangements Jan. 16, 1950 Boilers fixed Nov. 9, 1949 Engines tried under steam Jan. 25, 195

Main boiler safety valves adjusted Jan. 16, 1950 Thickness of adjusting washers Locknuts  
102000, 97,000

Rotor shaft, Material and tensile strength O.H. Steel HP 104,000 L.P. 87,750 Identification Mark 5926 WCC 11

Quill Shaft, Material and tensile strength O.H. Steel HP 93,500 LP 101,000 Identification Mark 8530 JKH 63

Pinion shaft, Material and tensile strength O.H. Steel HP 1st red. 114000 HP 2nd 116000 Identification Mark 6210 SS 12

1st Reduction Wheel Shaft, Material and tensile strength O.H. Steel LP " 115500 LP " 119500 Identification Mark 6380 SS 12

Wheel shaft, Material O.H. Steel Identification Mark 3797 RK Thrust shaft, Material - Identification Mark -

Intermediate shafts, Material " Identification Marks 9231 - 9283 RK Tube shaft, Material - Identification Marks -

Screw shaft, Material O.H. Steel Identification Marks Service 8750 SS Spare 8743 SS Steam Pipes, Material O.H. Steel Test pressure 1650 lb

Date of test Various from Oct. 27 to Dec. 20, 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 BRILLIANT" - Hull

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 1,50, fitted for oil fuel 1,50 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 .... £ : : 2 Feb. 1950  
Donkey Boiler Fee .... £ : : per F.A.G.  
Travelling Expenses (if any) \$ 70.00 : When received,  
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Committee's Minute

Assigned + LMC 1,50

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