

REPORT ON STEAM TURBINE MACHINERY. No. 9384

30 JAN 1950

Rpt. 4a.

Received at London Office

Date of writing Report 20 Dec. 1949... Port of PHILADELPHIA, PA. Date, First Survey 10th Feb. Last Survey 16th November, 1949. No. in Survey held at Essington & Chester, Pa. (Number of Visits five) Reg. Book - on the S.S. "SOVAC ASTRAL" - Tons Gross 17597.94 Net - Built at Chester, Pa. By whom built Sun SB & DD Co. Yard No. 572 When built 1949 Engines made at Essington, Pa. By whom made Westinghouse Elec. Engine No. 5A2148-12 When made 1949 Boilers made at Barberton, Ohio By whom made Babcock & Wilcox Boiler No. MB-4340 When made 1949 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. Two Turbo driven 300 KW generating sets.

No. of Turbines Ahead 1... single reduction geared to 1 shafts. No. of primary pinions to each set of reduction gearing 1 Astern D.C. Generator. phase - periods per second } rated 300 Kilowatts Volts at revolutions per minute; direct coupled to } Generator. Direct Current Generator } for supplying power for driving... Type Ship's Electrical Gear rated... Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE BLADING table with columns: H. P., I. P., L. P., ASTERN. Sub-columns: HEIGHT OF BLADES., DIAMETER AT TIP., NO. OF ROWS. Rows: 1ST EXPANSION, 2ND, 3RD, 4TH, 5TH, 6TH, 7TH, 8TH, 9TH, 10TH, 11TH, 12TH.

Shaft Horse Power at each turbine { H.P. 300 KW I.P. L.P. } Revolutions per minute, at full power, of each Turbine Shaft { H.P. 5930 1st reduction wheel 1200 I.P. L.P. main shaft }

Rotor Shaft diameter at journals { H.P. 2 1/2" I.P. L.P. } Pitch Circle Diameter { 1st pinion 5.063" 1st reduction wheel 25.009" 2nd pinion main wheel } Width of Face { 1st reduction wheel 6.000" main wheel }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 5.594" 1st reduction wheel 2nd pinion main wheel 5.594" }

Flexible Pinion Shafts, diameter { 1st 2nd } Pinion Shafts, diameter at bearings External Internal { 1st 2.495" 2nd } diameter at bottom of pinion teeth { 1st 4.833" 2nd } Wheel Shafts, diameter at bearings { 1st 3.990" main } diameter at wheel shroud, { 1st 25.209" Generator Shaft, diameter at bearings 3.990" Propelling Motor Shaft, diameter at bearings }

Intermediate Shafts, diameter as per rule as fitted Thrust Shaft, diameter at collars as per rule as fitted Tube Shaft, diameter as per rule as fitted

Screw Shaft, diameter as per rule as fitted Is the tube screw shaft fitted with a continuous liner } Bronze Liners, thickness in way of bushes as per rule as fitted

Thickness between bushes as per rule as fitted Is the after end of the liner made watertight in the propeller boss... 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

Propeller, diameter... Pitch... No. of Blades... State whether Moveable... Total Developed Surface... 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 I.P. Turbine exhaust direct to the

Condenser... No. of Turbines fitted with astern wheels... Feed Pumps { No. and size How driven }

Pumps connected to the Main Bilge Line { No. and size How driven }

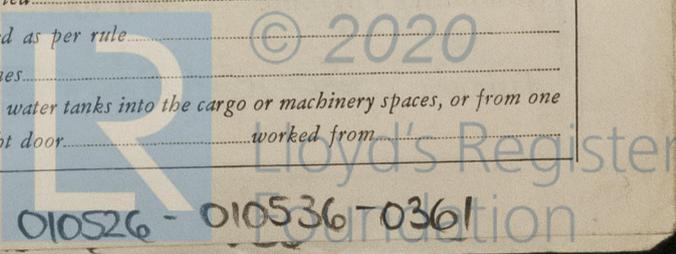
Ballast Pumps, No. and size... Lubricating Oil Pumps, including Spare Pump, No. and size... Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room

In Holds, &c... Main Water Circulating Pump Direct Bilge Suctions, No. and size... Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size... Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes... 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... Are all Sea Connections fitted direct on the skin of the ship... Are they fitted with Valves or Cocks...

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates... Are the Overboard Discharges above or below the deep water line... Are they each fitted with a Discharge Valve always accessible on the plating of the vessel... Are the Blow Off Cocks fitted with a spigot and brass covering plate... What pipes pass through the bunkers... How are they protected... What pipes pass through the deep tanks... 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... 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... Is the Shaft Tunnel watertight... Is it fitted with a watertight door... worked from



BOILERS, &c.— (Letter for record) Total Heating Surface of Boilers

Is Forced Draft fitted No. and Description of Boilers Working Pressure

Is a Report on Main Boilers now forwarded?

Is { a Donkey } Boiler fitted? If so, is a report now forwarded?

Plans.— Are approved plans forwarded herewith for Shafting Main Boilers Auxiliary Boilers Donkey Boilers

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

Spare Gear. State the articles supplied:— Rule Requirements.

The foregoing is a correct description,

Manufacturer

Dates of Survey while building { During progress of work in shops - - } 10th, 11th February, 1949
 { During erection on board vessel - - - } 4th, 9th, 16th November, 1949
 Total No. of visits Five

Dates of Examination of principal parts—Casings 11th February Rotors 11th Feb. Blading 11th Feb. Gearing 11th Feb.

Wheel shaft Thrust shaft Intermediate shafts Tube shaft Screw shaft

Propeller Stern tube Engine and boiler seatings Engine holding down bolts

Completion of pumping arrangements Boilers fixed Engines tried under steam

Main boiler safety valves adjusted Thickness of adjusting washers

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

Flexible Pinion Shaft, Material and tensile strength Identification Mark

Pinion shaft, Material and tensile strength O.H. Steel Identification Mark

1st Reduction Wheel Shaft, Material and tensile strength Identification Mark

Wheel shaft, Material Identification Mark Thrust shaft, Material Identification Mark

Intermediate shafts, Material Identification Marks Tube shaft, Material Identification Marks

Screw shaft, Material Identification Marks Steam Pipes, Material Test pressure

Date of test Is an installation fitted for burning oil fuel

Is the flash point of the oil to be used over 150°F. Have the requirements of the Rules for the use of oil as fuel been complied with

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 No If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c. These turbines were built under the survey of the A.B.S., and are war surplus stock, modified to suit the steam conditions of the vessel, in accordance with the approved plans. They have been satisfactorily installed on board the vessel, tried out under full power and found satisfactory. Meggar tests were carried out and found to be within the Society's Requirements.

Certificate (if required) to be sent to
 (The Surveys are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee	See other	When applied for,
Special	f Rpt. 4a	1st Dec, 49
Donkey Boiler Fee	f	per F.A.G
Travelling Expenses (if any)	f	When received,
		19

W.H.P. Rinkon & *J.S.M.*
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK JAN 4 - 1950 299

Assigned See Rpt. 4a attached



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Lloyd's Register Foundation

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