Rpt. 4a.

REPORT ON AUXILIARY STEAM TURBINE MACHINERY. No. 9446

Received at London Office 6 MAY 1950

Date of writing Report 10th April, 1950 When handed in at Local Office 10th April, 1950 Port of PHILADELPHIA, PA.

No. in Reg. Book - Survey held at Essington, Pa. Date, First Survey 9 Nov., 1949 Last Survey 21st March, 1950 (Number of Visits four)

on the S.S."SOVAC RADIANT" Tons { Gross 17597.94 / Net -

Built at Chester, Pa. By whom built SunSB & DD Co. Yard No. 576 When built 1949

Engines made at Essington, Pa. By whom made Westinghouse Elec. Engine No. 5A1124-33 & 34 When made "

Boilers made at Barberton, Ohio By whom made Babcock & Wilcox Boiler No. 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 2 - Turbo driven 300 KW generating sets.

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

direct coupled to ~~Alternating~~ Current Generator - phase - periods per second Direct Current Generator rated 300 Kilowatts 240 Volts at 1200 revolutions per minute;

for supplying power for driving ~~Propelling Motors~~, Type Ship's Electrical Gear.

rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE BLADING.	H. P.			I. P.			L. P.			ASTERN.		
	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	.933	25.496										
2nd "	1.400	25.745										
3rd "	1.820	25.939										
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 / I.P. / L.P. 1st reduction wheel 1200 / 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" / main **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 fittted 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 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** *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*

Are two independent means arranged for circulating water through the **Oil Cooler** **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*

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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** / **an Auxiliary** } **Boiler fitted?**..... *If so, is a report now forwarded?*.....

Plans. *Are approved plans forwarded herewith for Shafting*..... *Main Boilers*..... *Auxiliary Boilers*..... *Donkey Boilers*.....
(*If not state date of approval*)

Superheaters..... *General Pumping Arrangements*..... *Oil Fuel Burning Arrangements*.....

Spare Gear. *State the articles supplied:*— As required by Rules.

The foregoing is a correct description, ... *Manufacturer*

Dates of Survey while building
- *During progress of work in shops* - - 9th & 10th Nov., 1949.
- *During erection on board vessel* - - - 14th and 21st March, 1950
- *Total No. of visits* Four.

Dates of Examination of principal parts—Casings 10.11.49 *Rotors* 10.11.49 *Blading* 10.11.49 *Gearing* 10.11.49

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 saftey 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 yes *If so, state name of vessel* Sun Hulls 570-576

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 and high potential tests were carried out and found to be within the Requirements of the A.I.E.E. Please see Report 10.

Certificate (if required) to be sent to.....

(*The Surveyors are requested not to write on or below the space for Committee's Minute*)

The amount of Entry Fee	Please see other Rpt.4a		When applied for, 11th Apr 1950 per F.A.G.
Special	£ : :		
Donkey Boiler Fee	£ : :		When received, ... 19.....
Travelling Expenses (if any)	£ : :		

Committee's Minute NEW YORK APR 19 1950

Assigned See First Entry Rpt. attached.

W A Purchase

Engineer Surveyor to Lloyd's Register of Shipping.

For S.S.O.F. see

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