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San Salvador

Report on Steam Turbine Machinery.

No. 120864

18 JAN 1951

Received at London Office

Date of writing Report 20 SEP 1950 When handed in at Local Office 25 SEP 1950 Port of London

No. in Survey held at Grith Kent. Date, First Survey 2.5.50 Last Survey 17.8.1950

Reg. Book on the T.E.S. SAN SALVADORE. Tons (Gross) (Net)

Built at Haverton Hill on Tees By whom built Furness S.B.Co. Yard No. 445 When built

Engines made at Grith By whom made G.E.C. (Traer & Chalmer) Engine No. 5405/6 When made 1950

Boilers made at By whom made Boiler No. When made

Shaft Horse Power at Full Power Owners Port belonging to

Nom. Horse Power as per Rule Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

Trade for which Vessel is intended

TEAM TURBINE ENGINES, &c.—Description of Engines Auxiliary Turbo Generators

No. of Turbines Two Direct coupled, single reduction geared } D.C. Generators to propelling shafts. No. of primary pinions to each set of reduction gearing one.

Direct coupled to { Alternating Current Generator phase periods per second } Direct Current Generator rated 400 Kilowatts 220 Volts at 1000 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 LADING.	H. P.			H. 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	.66"	18.82"	1	1.04"	20.70"							
2nd "	1.02	19.18	1	1.30	20.96							
3rd "				1.22	22.38							
4th "	<u>Velocity wheels</u>			1.60	22.76							
5th "				2.26	23.42							
6th "				2.88	24.04							
7th "												
8th "				<u>Rateau wheels</u>								
9th "												
10th "												
11th "												
12th "												

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

Rotor Shaft diameter at journals { H.P. I.P. L.P. } Pitch Circle Diameter { 1st pinion 4.275" 1st reduction wheel 27.725" 2nd pinion main wheel } Width of Face { 1st reduction wheel 8 3/4" main wheel 8 3/4" }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 7 1/2" 1st reduction wheel 7 3/4" 2nd pinion main wheel }

Flexible Pinion Shafts, diameter at bearings { 1st External Internal 2nd } Pinion Shafts, diameter at bearings { 1st 3 1/2" 2nd } diameter at bottom of pinion teeth { 1st 2nd }

Wheel Shafts, diameter at bearings { 1st 4 1/2" / 5 1/2" driving side diameter at wheel shroud, main } Generator Shaft, diameter at bearings 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 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 If so, state type Length of Bearing in Stern Bush next to and supporting propeller

Propeller, diameter Pitch No. of Bades 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. Turbines 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 both to Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room In Pump Room

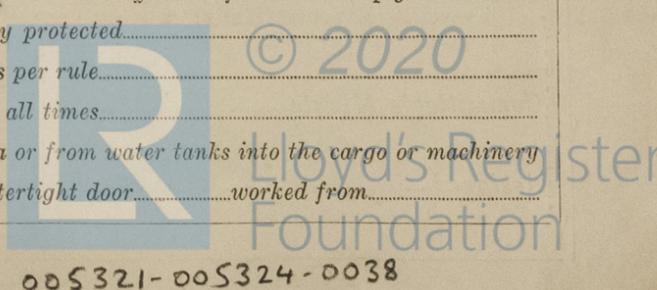
In Holds, &c. Main Water Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room

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



005321-005324-0038

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?
 { an Auxiliary }

Is the donkey boiler intended to be used for domestic purposes only.....
 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.

Has the spare gear required by the Rules been supplied..... *yes.*
 State the principal additional spare gear supplied.....

For and on behalf of
THE GENERAL ELECTRIC Co. LTD.
 (Frasers & Chalmers Engineering Works.)
Hiedman

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops - - } *May 2nd 23* { During erection on board vessel - - } *June 3rd 23* *July 10th 20* *Aug 17 1950.*
 Total No. of visits.....

Dates of Examination of principal parts—Casings *2.5.50* Rotors *23.5.50* Blading *23.6.50.* Gearing.....
 Wheel shaft..... Thrust shaft..... Intermediate shafts..... Tube shaft..... Screw shaft.....
 Propeller..... Stern tube..... Engine and boiler seatings..... Engine holding down bolts.....
 Completion of fitting sea connections..... 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 *Forged ingot steel* Identification Mark *No 1. LLOYDS 340*
 Flexible Pinion Shaft, Material and tensile strength..... Identification Mark *No 2. LLOYDS 340*
 Pinion shaft, Material and tensile strength..... 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.....
 If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with.....

Is this machinery a duplicate of a previous case..... *Yes.* If so, state name of vessel *T.E.S. San Sylvestre.*

General Remarks. (State quality of workmanship, opinions as to class, &c.) *The two turbines have been built in accordance with the approved plans and the requirements of the Rules. Steel used in their manufacture has been made at works approved by the Committee and under the supervision of their Surveyors. On completion the turbines were coupled to the generators and tested at working speed under full and light load condition with satisfactory results. The operation of the governors and trip gears have been tested and found in order. The workmanship is good and the machinery is in my opinion eligible for the notation + H.M.C. (with date) when satisfactorily installed and tested in the vessel intended. It has now been despatched to Haverton.*

The amount of Entry Fee ... £ : : When applied for *25 Sept 1950*
 Special ... £ *39:4:0*
 Donkey Boiler Fee ... £ : : When received
 Travelling Expenses (if any) £ : : 19

A. C. Stirling
 Engineer Surveyor to Lloyd's Register of Shipping.
These 2 turbo generators have been carefully fitted aboard & tried out under working conditions & found satisfactory. As per Mr. Hunt.

FRI. 9 FEB 1951

Committee's Minute.....
 Assigned *See F.E. usky. rpt.*

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

