

Auxiliary
REPORT ON STEAM TURBINE MACHINERY. No. **NYK 52229**

645/18 pt. 4a.

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Writing Report on the **single screw steel steamer "CHRYSOS"** on the **Quincy, Mass.** By whom built **Bethlehem Steel Co. Yard No. 1630** When built **1953**
 Date, First Survey **Dec 19th 52** Last Survey **Mar 4th 1953**
 Reg. Book **Quincy, Mass.** Date, First Survey **Dec 19th 52** Last Survey **Mar 4th 1953**
 Tons { Gross **18,732** Net **11,652**
 Engines made at **Trenton N.J.** By whom made **De Laval Steam Turb. Co.** Engine No. **650575/0** When made **1952**
 Boilers made at **Carteret, N.J.** By whom made **Foster Wheeler Corp.** Boiler No. **3521+2** When made **1952**
 Shaft Horse Power at Full Power **15,000** Owners **Santander Compania Naviera S.A.** Port belonging to **Panama, R.P.**
 Nom. Horse Power as per Rule **3,000** Is Refrigerating Machinery fitted for cargo purposes **No.** Is Electric Light fitted **Yes.**
 Trade for which Vessel is intended **Tanker**

STEAM TURBINE ENGINES, &C.—Description of Engines **400 K.W. A.C. Turbo-generators (Two units)**
 No. of Turbines Ahead **One** Direct coupled, single reduction geared } to **one** propelling shafts. No. of primary pinions to each set of reduction gearing **one**
 Astern double reduction geared }
 Direct coupled to { Alternating Current Generator **3** phase **60** periods per second } rated **400** Kilowatts **450** Volts at **1200** revolutions per minute;
 supplying power for driving { Direct Current Generator }
 Propelling Motors, Type **Ships auxiliaries**
 Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

Manufacturer	TURBINE LADING.	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 ROW	.550	21.106										
2nd	"	.890	21.586										
3rd	"	.540	23.126										
4th	"	.840	23.736										
5th	"	.540	23.126										
6th	"	.840	23.736										
7th	"	1.580	24.226										
8th	"	2.450	24.866										

Shaft Horse Power at each turbine { H.P. I.P. L.P. } Revolutions per minute, at full power, of each Turbine Shaft { H.P. **590.5** reduction wheel 1200 I.P. L.P. main shaft }

Pinion Shaft diameter at journals { H.P. I.P. L.P. } Pitch Circle Diameter { 1st pinion **5.811** 1st reduction wheel **28.593** 2nd pinion main wheel } Width of Face { 1st reduction wheel **6 1/2** main wheel }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion **5 7/8** 1st reduction wheel **5.573** 2nd pinion main wheel }

Pinion Shafts, diameter at bearings { External Internal } { 1st **2 1/2** 2nd } diameter at bottom of pinion teeth { 1st 2nd }
 Wheel Shafts, diameter at bearings { main } **4.494** diameter at wheel shroud, { 1st Generator Shaft, diameter at bearing **5.378** main 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
 Propeller 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 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 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 lubricator 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.
 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 }

Connections connected to the Main Bilge Line { No. and size How driven }
 Bilge Pumps, No. and size. Lubricating Oil Pumps, including Spare Pump, No. and size.

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.
 Holds, &c.

Main Water Circulating Pump Direct Bilge Suctions, No. and size. Independent Power Pump Direct Suctions to the Engine Room
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes.

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.
 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.
 How are they protected.
 Have they been tested as per rule.

All Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times.
 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 Working Pressure

Is Forced Draft fitted No. and Description of Boilers

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:—

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops - - } { During erection on board vessel - - } Total No. of visits

PHILA please see NYK. report NO. 9853. continuous.

Dates of Examination of principal parts—Casings Rotors Blading Gearing

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 Identification Mark

Rotor shaft, Material and tensile strength Identification Mark

Flexible Pinion Shaft, Material and tensile strength Identification Mark

Pinion shaft, Material and tensile strength Identification Mark

1st Reduction Wheel Shaft, Material and tensile strength *Lloyd's No.s. 2796 & 2799.* 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 *Feb. 20th 1953.* 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 If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.) *The turbo generator's have been built under special survey, in accordance with approved plans and examined during installation on vessel, examined under working conditions and found to be satisfactory. In my opinion these turbo-generator's are suitable to be included with the machinery of vessel classed with Lloyd's Register of Shipping.*

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	£	✓	When applied for,
Special	£	✓	19
Donkey Boiler Fee	£		When received,
Travelling Expenses (if any)	£		19

W. S. Whelsh.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *NEW YORK MAR 25 1953*
Assigned *See attached 1st Entry Report*

