

# Report on Steam Turbine Machinery.

N.Y.K.  
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Rpt. 4a.

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 No. in Survey held at Quincy, Massachusetts Date, First Survey Jan. 29<sup>th</sup> Last Survey Oct. 8<sup>th</sup> 1954  
 Reg. Book on the steel, screw steamer "Master Peter" (Number of Visits cont.)  
 Built at Quincy, Mass. By whom built Bethlehem Steel Co. Yard No. 1635 When built 1954  
 Engines made at Quincy, Mass. By whom made Bethlehem Steel Co. Engine No. Port 3698 When made 1954  
 Boilers made at Carteret, N.J. By whom made Foster, Wheeler Corp. Boiler No. 3699 When made 1954  
 Shaft Horse Power at Full Power 15,000 Owners Bilbao 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 Carrying Petroleum in bulk.

## STEAM TURBINE ENGINES, &c.—Description of Engines cross compound geared turbines.

No. of Turbines two one Direct coupled, single reduction geared to one propelling shaft. No. of primary pinions to each set of reduction gearing two  
 direct coupled to Alternating Current Generator phase periods per second rated Kilowatts Volts at 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 BLADING.	H. P.	I. P.	L. P.	ASTERN.
Impulse Blading { No. of rows	2.	NIL	0.	2 stages
Reaction Blading { No. of stages	22.		21.	3 rows - 1 <sup>st</sup> stage
Reaction Blading { No. of rows in each stage	1.		1.	2 rows - 2 <sup>nd</sup> stage.

Shaft Horse Power at each turbine { H.P. 6150 ✓ I.P. — L.P. 7450 ✓ } Revolutions per minute, at full power, of each Turbine Shaft { H.P. 4773 I.P. — L.P. 2673 }  
 1st reduction wheel 800 main shaft 109

Rotor Shaft diameter at journals { H.P. 5" ✓ I.P. — L.P. 9" ✓ } Pitch Circle Diameter { 1st pinion — 2nd pinion — } 1st reduction wheel 69.304" main wheel 166.554" Face { 1st reduction wheel 21 3/4" main wheel 40"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion HP 35 1/2" LP 36" 2nd pinion 38 3/4" } 1st reduction wheel 30 1/4" main wheel 30 1/4" H.P. 10.028" L.P. 19.8" 2nd 21.411"

Flexible Pinion Shafts, diameter { 1st 18" ✓ 2nd — ✓ } Pinion Shafts, diameter at bearings { External — Internal — } 1st 19.1875" Generator Shaft, diameter at bearings — 2nd 21.411"

Wheel Shafts, diameter at bearings { 1st 18" ✓ main 22 1/2" ✓ } diameter at wheel shroud, { 1st 19.1875" ✓ main 25 1/8" ✓ } Propelling Motor Shaft, diameter at bearings —

Intermediate Shafts, diameter { as per rule 20" as fitted 20 1/2" ✓ } Thrust Shaft, diameter at collars { as per rule 21.83" as fitted 26" ✓ } Is the tube shaft fitted with a continuous liner Yes ✓

Tube Shaft, diameter { as per rule — as fitted — } Screw Shaft, diameter { as per rule — as fitted — } Is the screw shaft fitted with a continuous liner Yes ✓

Bronze Liners, thickness in way of bushes { as per rule .91" as fitted 1.725" } Thickness between bushes { as per rule .68" as fitted .875" } Is the after end of the liner made watertight in the propeller boss Yes ✓ If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner one length ✓

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 Yes ✓  
 If two liners are fitted, is the shaft lapped or protected between the liners Yes ✓ Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft No ✓ If so, state type — Length of Bearing in Stern Bush next to and supporting propeller 8'-10" ✓

Propeller, R.H. solid 21'-0" Pitch 16'-6" No. of Blades 6 State whether Moveable No Total Developed Surface 195.5 square feet.  
 If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes ✓ Can the H.P. or I.P. Turbines exhaust direct to the Condenser Yes ✓ No. of Turbines fitted with astern wheels one LP Feed Pumps { No. and size 3-300 gals/min (1-6 stage + 2-1 stage) How driven steam turbine }

Pumps connected to the Main Bilge Line { No. and size 2-5" rotary ✓ How driven electric motor } Lubricating Oil Pumps, including Spare Pump, No. and size 2-6" rotary ✓

Are two independent means arranged for circulating water through the Oil Cooler Yes ✓ Suctions, connected both to Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room 1-5", 2-3 1/2", 1-4", 1-1/2" Fire room 1-5", 2-2 1/2", 1-1 1/2" In Pump Room —

In Holds, &c. Fore hold 2-3", fore pump room 1-3", cargo pump room 2-3" Main Water Circulating Pump Direct Bilge Suctions, No. and size one - 18" Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size two - 5" ✓ Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes ✓

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 ✓  
 Are all Sea Connections fitted direct on the skin of the ship Yes, chests ✓ Are they fitted with Valves or Cocks values ✓  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes ✓ Are the Overboard Discharges above or below the deep water line below ✓ 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 None ✓ How are they protected — ✓

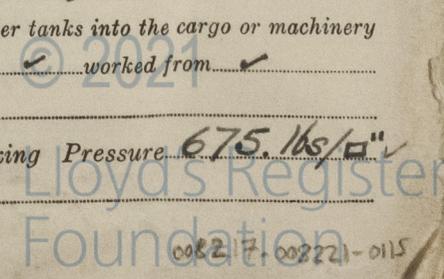
What pipes pass through the deep tanks — ✓ Have they been tested as per rule — ✓  
 Are all Pipes, Cocks, Valves and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes ✓

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 ✓ Is the Shaft Tunnel watertight — ✓ Is it fitted with a watertight door — ✓ worked from — ✓

BOILERS, &c.—(Letter for record —) Total Heating Surface of Boilers 21,130 sq. ft. ✓  
 Is Forced Draft fitted Yes ✓ No. and Description of Boilers 2-D type Foster Wheeler Working Pressure 675 lbs/sq. in. ✓

Is a Report on Main Boilers now forwarded? Yes ✓

NOTE.—The words which do not apply should be deleted. If not, state whether, and when, one will be sent? Is a Report also sent on the Hull of the Ship? Yes.



Is  a Donkey Boiler fitted? *NO.* 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 *Yes.* Main Boilers  Auxiliary Boilers  Donkey Boilers   
 (If not, state date of approval)  
 Superheaters  General Pumping Arrangements  Oil Fuel Burning Arrangements   
 Geared turbines situated aft. Have torsional vibration characteristics of system been approved? *Yes.* Date of approval \_\_\_\_\_

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied? \_\_\_\_\_  
 State the principal additional spare gear supplied. *Spare propeller (housed ashore, stated by arrangement)*  
*one complete set of shell bearings & thrust shoes.*  
*six H.P. & eleven L.P. casing joint bolts*  
*six bearing cap bolts*  
*one impeller shaft and impeller for main circulating pump.*  
*twelve boiler tube stoppers*  
*one set oil fuel nozzles.*

The foregoing is a correct description.

*E. J. Reardon*

Dates of Survey while building: During progress of work in shops - - *continuous*  
 During erection on board vessel - -  
 Total No. of visits \_\_\_\_\_  
 Dates of Examination of principal parts: Casings *April 19<sup>th</sup> 54.* Rotors *April 19<sup>th</sup> 54* Blading *May 10<sup>th</sup> 54* Gearing *Sept.*  
 Wheel shaft  Thrust shaft *Sept. 7<sup>th</sup> 54.* Intermediate shafts *Sept 7<sup>th</sup>* Tube shaft  Screw shaft *May*  
 Propeller *May 10<sup>th</sup> 54.* Stern tube *May 27<sup>th</sup> 54.* Engine and boiler seatings *June 10<sup>th</sup> 54.* Engine holding down bolts *Sept.*  
 Completion of fitting sea connections *June 11<sup>th</sup>* Completion of pumping arrangements *Sept 8<sup>th</sup>* Boilers fixed *June 17<sup>th</sup>* Engines tried under steam \_\_\_\_\_  
 Main boiler safety valves adjusted \_\_\_\_\_  
 Rotor shaft, Material and tensile strength: H.P. *OH. steel 90,000lbs. elong. 21% reduction 45% Heat No. 27C33.*  
 L.P. *OH. steel 75,000lbs " 22% " 40% Identification Mark 29C66*  
 Flexible Pinion Shaft, Material and tensile strength *please see Cleveland report no. 1695.* Identification Mark \_\_\_\_\_  
 Pinion shaft, Material and tensile strength \_\_\_\_\_ Identification Mark \_\_\_\_\_  
 \_\_\_\_\_; Chemical analysis \_\_\_\_\_

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment \_\_\_\_\_  
 1st Reduction Wheel Shaft, Material and tensile strength \_\_\_\_\_ Identification Mark \_\_\_\_\_  
 Wheel shaft, Material \_\_\_\_\_ Identification Mark \_\_\_\_\_ Thrust shaft, Material \_\_\_\_\_ Identification Mark \_\_\_\_\_  
 Intermediate shafts, Material *forged steel* Identification Marks *81M652 B1* Tube shaft, Material \_\_\_\_\_ Identification Marks \_\_\_\_\_  
 Heat No. *84 N 010 A1.*  
 Screw shaft, Material *forged steel* Identification Marks *Lloyds 3288* 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? \_\_\_\_\_ If so, state name of vessel \_\_\_\_\_

General Remarks. (State quality of workmanship, opinions as to class, &c.) *The main H.P. & L.P. turbines have built under special survey in accordance with approved plans. The workmanship & materials are good throughout, the hydraulic tests satisfactory. On completion, the turbines were run in shop at 15% their designed speed and found satisfactory. The above described machinery with reduction gearing have been fitted in vessel, examined & tested under working conditions and found to be satisfactory, in my opinion eligible to have the notation + L.M.C. 10. T.S. (CL) in the Register Book.*

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  
 Committee's Minute *NEW YORK NOV 17 1954*  
 Assigned *+ LMC 10.54*

*W. P. Holmes*  
 Engineer Surveyor to Lloyd's Register of Shipping.  
  
 Lloyd's Register Foundation

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