

Rpt. 4a.

Report on Steam Turbine Machinery.

N.Y.K. No. 52639

Date of writing Report Aug. 12th 1953 When handed in at Local Office 19 Port of NEW YORK Received at London Office 11 SEP 1953
 No. in Survey held of Quincy, Mass. Date, First Survey Dec. 18th 52 Last Survey Aug. 11th 1953
 Reg. Book _____ (Number of Visits cont.)
 on the steel, screw steamer "ANDROS HILLS" Tons (Gross 18,735) (Net 11,603)
 Built at Quincy, Mass. By whom built Bethlehem Steel Co. Yard No. 1632 When built 1953
 Engines made at Quincy, Mass. By whom made Bethlehem Steel Co. Engine No. 1630 L.P. When made 1953
 Boilers made at Carteret, N.J. By whom made Foster, Wheeler Corp. Boiler No. 85003 When made 1953
 Shaft Horse Power at Full Power 15,000 Owners Rio Venturado Compania Naviera SA 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 Cross compound geared turbines.
 No. of Turbines Ahead Two Direct coupled, single reduction geared } to one propelling shafts. No. of primary pinions to each set of reduction gearing two
 Astern one double reduction geared }
 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 <u>2</u>		<u>Nil</u>	<u>0</u>	<u>2 stages</u>
Reaction Blading { No. of stages <u>22</u>			<u>21</u>	<u>3 rows 1st stage</u>
Reaction Blading { No. of rows in each stage <u>1</u>			<u>1</u>	<u>2 rows 2nd stage.</u>

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 }
 Rotor Shaft diameter at journals { H.P. 5" I.P. - L.P. 9" } Pitch Circle Diameter { 1st pinion LP 20.193" 2nd pinion - } reduction wheel 69.304" main wheel 166.554" Width of 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" } main wheel 30 1/4"
 Flexible Pinion Shafts, diameter { 1st HP 7" 2nd LP 9" } Pinion Shafts, diameter at bearings { External 18" Internal 18" } diameter at bottom of pinion teeth { 1st HP 10.928" 2nd LP 19.813" }
 Wheel Shafts, diameter at bearings { 1st 18" main 22 1/2" } diameter at wheel shroud, { 1st 19.1875" main 25 1/8" c/s. } Generator Shaft, diameter at bearings ✓ 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"
 Tube Shaft, diameter as per rule 24 1/2" as fitted 25" Screw Shaft, diameter as per rule 26" as fitted 26" Is the tube shaft fitted with a continuous liner Yes.

Bronze Liners, thickness in way of bushes as per rule .68" as fitted .875" Thickness between bushes as per rule .91" as fitted 1.125" 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 ✓
 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 No. If so, state type ✓ Length of Bearing in Stern Bush next to and supporting propeller 8'-10"

Propeller, diameter 21'-0" Pitch 17'-0" 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 Three - 300 galls/min (2 - single stage) How driven steam turbine (1 - 6 (six) stage)

Pumps connected to the Main Bilge Line { No. and size Two - 5" rotary How driven electric motor }
 Ballast Pumps, No. and size Two - 5" rotary Lubricating Oil Pumps, including Spare Pump, No. and size Two - 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 one - 5" two - 3 1/2", one - 4", one - 1 1/2" In Fire Room one - 5" two - 2 1/2" one - 1 1/2"

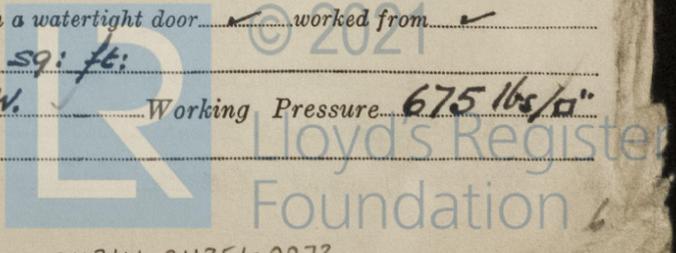
In Holds, &c. Fore hold, two - 3", fwd. pump rm. one - 3" cargo pump rm. two - 3"
 Main Water Circulating Pump Direct Bilge Suctions, No. and size one - 18" Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2 (two - 5") Are all the Bilge Suction pipes in Holds and Tunnel 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 valves
 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 Yes. 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 Two II type F.W. 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 No. Main Boilers No. 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? _____ Date of approval _____

SPARE GEAR.

Has the spare gear required by the Rules been supplied? _____
 State the principal additional spare gear supplied. spare propeller (spare propeller housed on shore)
one complete set of shell bearing & thrust shoes. stated to be by arrangement
SIX H.P. casing joint bolts
eleven L.P. casing joint bolts
six bearing cap bolts (studs)
one impeller & shaft for main circulating pump.
one set oil fuel nozzles
twelve boiler tube stoppers, quantity of assorted nuts & bolts.

The foregoing is a correct description.

G. J. Sullivan

Man

Dates of Survey while building { During progress of work in shops - - } continuous
 { During erection on board vessel - - } Dec: 18th 1952 to Aug: 11th 1953.
 Total No. of visits _____

Dates of Examination of principal parts—Casings Dec. 18th 52. Rotors Feb. 26th 53 Blading Mar. 21st 52 Gearing Aug. 6
 Wheel shaft Thrust shaft Intermediate shafts Tube shaft Screw shaft May. 14

Propeller June 15th 53 Stern tube June 5th 53. Engine and boiler seatings July 29th 53 Engine holding down bolts July 29
 Completion of fitting sea connections June 10th Completion of pumping arrangements July 29 Boilers fixed July 21st Engines tried under steam July 29

Main boiler safety valves adjusted July 29th 53 Thickness of adjusting washers
 Rotor shaft, Material and tensile strength L.P. O.H. steel 90,000 lbs. elong. 21% reduction 45% Head No. 26894
H.P. O.H. steel 75,000 lbs. elong. 22% " 40% Identification Mark 29B-802A

Flexible Pinion Shaft, Material and tensile strength
 Pinion shaft, Material and tensile strength please see Cleveland report No. 1620 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 _____ Identification Marks _____ Tube shaft, Material _____ Identification Marks _____
 Screw shaft, Material forged steel Identification Marks Lloyd's 4387 BIM 63481 Steam Pipes, Material solid drawn O.H. Test pressure 140

Date of test June 11th 1953. Is an installation fitted for burning oil fuel? yes.

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

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 S/S CHRYSSI N.Y.K. 522

General Remarks. (State quality of workmanship, opinions as to class, &c.) The main H.P. & L.P. turbines have been built special survey in accordance with approved plans. The workmanship & materials are good the hydraulic tests satisfactory. On completion, the turbines were run in shop at 15% over a speed & found satisfactory. The above machinery with reduction gearing have been fitted in tested under working conditions at sea & found to be satisfactory.

In my opinion the machinery of this vessel is eligible to have the record of: L.M.C. B.53 and the notation T.S. (CL) in the Register Book.

T.V.C. 14/7/49 for 100 rpm. (turning with screws)

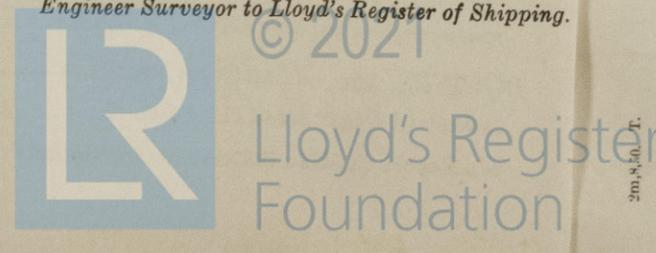
Certificate (if required) to be sent to _____
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee ... : : When applied for
 Special ... : : 19
 Donkey Boiler Fee ... : :
 Travelling Expenses (if any) : : 19
 When received

W. P. Holmes

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK AUG 26 1953
 Assigned + LMC 8.53.



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