

REPORT ON STEAM TURBINE MACHINERY

LLOYD'S 52406

Date of writing Report May 6th 53 1953 When handed in at Local Office Port of NEW YORK
 No. in Survey held at Quincy, Massachusetts Date, First Survey Jan. 2nd 53 Last Survey May 6th 1953
 Reg. Book on the steel screw steamer "ANDROS ISLAND" (Number of Visits cont.)
 Built at Quincy, Mass. By whom built Bethlehem Steel Co. Yard No. 1631 When built 1953
 Engines made at Quincy, Mass. By whom made Bethlehem Steel Co. Engine No. 1630-H-2 When made 1953
 Boilers made at Carteret, N.J. By whom made Foster Wheeler Co. Boiler No. 1630-L-2 When made 1953
 Shaft Horse Power at Full Power 15,000 Owners Rio Venturada Compania Nav. 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 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		H. P.			L. P. (Reaction)			L. P. (cont.)			ASTERN. (Impulse)				
BLADING		HEIGHT OF	DIAMETER	NO. OF	HEIGHT OF	DIAMETER	NO. OF	HEIGHT OF	DIAMETER	NO. OF	HEIGHT OF	DIAMETER	NO. OF		
1 ST Expansion		BLADES.	AT TIP."	ROWS.	BLADES."	AT TIP."	ROWS.	BLADES.	AT TIP."	ROWS.	BLADES.	AT TIP."	ROWS.		
1 ST	Row	3/4"	28 (MD)	1	1 ST Exp 1.148	29.405	1	12 TH	3.000	38.820	1 ST Stage				
2 ND	Fixed	1 3/16"	28 (MD)	1	2 ND	1.823	30.187	1	13 TH	3.414	40.010	1 ST Row 3/4"	47	1	
2 ND	Moving	1 3/8"	28 (MD)	1	3 RD	1.899	31.027	1	14 TH	3.882	41.368	1 ST	1"	47	1
4 TH	Reaction				4 TH	1.974	31.754	1	15 TH	4.250	42.726	2 ND	1 1/4"	47	1
6 TH	"	1 1/8"	17 1/8	5	5 TH	2.050	32.528	1	16 TH	4.810	44.743	2 ND	1 1/2"	47	1
2 ND	"	1 3/8"	17 3/8	4	6 TH	2.125	33.309	1	17 TH	5.376	46.363	3 RD	1 3/4"	47	1
3 RD	"	1 5/8"	17 5/8	4	7 TH	2.269	34.039	1	18 TH	6.530	47.863	2 ND Stage			
4 TH	"	1 7/8"	17 7/8	3	8 TH	2.416	34.996	1	19 TH	7.844	49.177	1 ST Row 4	43		1
5 TH	"	2 1/8"	18 1/8	3	9 TH	2.562	35.952	1	20 TH	9.227	50.560	1 ST 5	43		1
6 TH	"	2 1/2"	18 1/2	3	10 TH	2.708	36.908	1	21 ST	10.696	51.864	2 ND 6	43		1
4 TH	"				11 TH	2.854	37.864	1							
2 ND	"														
							</								

Shaft Horse Power at each turbine { H.P. 6150 ✓ I.P. 7450 ✓ Revolutions per minute, at full power, of each Turbine Shaft { H.P. 4773 ✓ I.P. 2673 ✓ 1st reduction wheel 800
 Propeller Shaft diameter at journals { H.P. 5" ✓ I.P. 9" ✓ Pitch Circle Diameter { 1st pinion LP 20.193 1st reduction wheel 69.304" 2nd pinion 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" 1st reduction wheel 30 1/4" 2nd pinion 38 3/4" main wheel 30 1/4"
 Movable Pinion { 1st HP 7" ✓ 2nd LP 9" ✓ Pinion Shafts, diameter at bearings { External 1st 18" ✓ 2nd 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" ✓ Generator Shaft, diameter at bearings ✓
 Intermediate Shafts, diameter as per rule 20 1/2" ✓ Thrust Shaft, diameter at collars as per rule 22 1/2" ✓ Tube Shaft, diameter as per rule 23" ✓
 New Shaft, diameter as per rule 21.83" ✓ as fitted 23.00" ✓ Is the tube ✓ shaft fitted with a continuous liner ✓ Bronze Liners, thickness in way of bushes as per rule .91" ✓
 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 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 bearing appliance fitted at the after end of the tube shaft No ✓ Length of Bearing in Stern Bush next to and supporting propeller 8'-10" ✓
 Propeller, diameter 21'-0" Pitch 17'-0" No. of Blades 5 State whether Movable No ✓ Total Developed Surface 195.5 square feet.
 Angle Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes ✓ Can the H.P. or L.P. Turbine exhaust direct to the condenser Yes ✓ No. of Turbines fitted with astern wheels One (L.P.) ✓ Feed Pumps { No. and size 2-single stage 1-six stage Rotary ✓ How driven steam turbine ✓
 Pumps connected to the Main Bilge Line { No. and size Two - 5" rotary, One - duplex steam reciprocating 7 1/2 x 6 x 10" ✓ How driven Electric motor ✓
 Bilge Pumps, No. and size Two - 5" rotary ✓ Lubricating Oil Pumps, including Spare Pump, No. and size Two - 6" rotary ✓
 Are there independent means arranged for circulating water through the Oil Cooler Yes ✓ Suctions, connected to both 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" Boiler room One - 5", two - 2 1/2", one - 1 1/2" ✓
 Holds, &c. Fore hold, two - 3", mid: pump room one - 3", cargo pump room, two - 3" ✓
 Main Water Circulating Pump Direct Bilge Suctions, No. and size one - 18" ✓ Independent Power Pump Direct Suctions to the Engine Room { 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 ✓ 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 ✓

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 "D" type Foster Wheeler Working Pressure 675 lbs/0 ✓
Is a Report on Main Boilers now forwarded? yes.
Is { a Donkey } Boiler fitted? No, L.P. steam generator. ✓ If so, is a report now forwarded? yes.
Plans. Are approved plans forwarded herewith for Shafting No. Main Boilers No. Auxiliary Boilers ✓ L.P. steam gen! Donkey Boilers No.
(If not state date of approval)

Superheaters No. General Pumping Arrangements..... Oil Fuel Burning Arrangements.....

Spare Gear. State the articles supplied: Bronze propeller

One complete set of bearing shells & thrust pads
Six H.P. casing joint bolts
Eleven L.P. " " "
Six bearing cap studs
One impeller & impeller shaft for main circulating pump.
Twelve tube stoppers
One set oil fuel burner nozzles
Quantity of assorted studs, nuts & bolts of various sizes

The foregoing is a correct description,

M. I. Russell Manufacturer

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

Continuous from Jan 2nd to May 6th 1953.

Dates of Examination of principal parts—Casings 18th Feb. (steam test) Rotors 16th-19th Feb. 53. Blading 16th-19th Feb. 53 Gearing April 29th
Wheel shaft ✓ Thrust shaft April 29th Intermediate shafts Feb. 18th 53. Tube shaft ✓ Screw shaft Feb. 18th 53.
Propeller Feb. 28th 1955 Stern tube Feb. 19th 53 Engine and boiler seatings Feb. 16th 53. Engine holding down bolts April 29th 53
Completion of pumping arrangements April 29th 53. Boilers fixed..... Engines tried under steam April 29th 53.

Main boiler safety valves adjusted April 13th 53 Thickness of adjusting washers ✓

Rotor shaft, Material and tensile strength L.P. O.H. steel 86,500 lbs.

Heat No. 26 B 694 A.I.

Identification Mark 27 B 627 A.I.

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.....

Identification Mark.....

Wheel shaft, Material..... Identification Mark.....

Thrust shaft, Material..... Identification Mark.....

Intermediate shaft, Material O.H. steel Identification Marks Lloyd's 5926

Tube shaft, Material ✓ Identification Marks.....

Screw shaft, Material O.H. steel Identification Marks Lloyd's 5921

Steam Pipes, Material Solid drawn O.H. Test pressure 1350 lbs/0

Date of test Feb. 18th 53 Hyd. test.....

Is an installation fitted for burning oil fuel yes ✓

Is the flash point of the oil to be used over 150°F. No.

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 Tanker ✓

If so, have the requirements of the Rules been complied with yes.

Is this machinery a duplicate of a previous case yes.

If so, state name of vessel SP CHRYSSI N.Y.K. 52229.

General Remarks (State quality of workmanship, opinions as to class, &c.)

The main H.P. & L.P. turbines have been built under special survey in accordance with approved plans. The workmanship & materials are good, hydraulic tests satisfactory. On completion, turbines run at 15% over designed. The above machinery together with reduction gears (Cleveland report 1576) have been fitted in the vessel, the workmanship & materials are good, they have been tested under working conditions & found satisfactory, in the opinion of the undersigned are eligible to have the record of L.M.C. 5.53 in the Register Book.

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

W. P. Whess.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

NEW YORK MAY 20 1953

Assigned + LMC 5.53



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