

# REPORT ON STEAM TURBINE MACHINERY. No. 7189

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Date of writing Report 15th Oct. 40 When handed in at Local Office 22nd Oct. 40 Port of Baltimore, Maryland

No. in Survey held at Baltimore, Maryland Date, First Survey 27th August Last Survey 10th September 1940

Reg. Book. 77056 on the Steel Single Screw Steamship "KALANI" (Number of Visits 4) Tons Gross 5506.9 Net 3412

Built at Seattle, Washington By whom built Skinner & Eddy Corp. Yard No. 21. When built 1918.

Engines made at Schenectady. By whom made General Electric Co Engine No. 13427. When made 1918

Boilers made at Seattle, Wash. By whom made Commercial Boiler Works Boiler No. 5375-6-7 When made 1918

Shaft Horse Power at Full Power 2500 Owners Ministry of Shipping Port belonging to

Nom. Horse Power as per Rule 509.7 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

Trade for which Vessel is intended General Cargo.

## STEAM TURBINE ENGINES, &c.—Description of Engines Impulse Curtis Turbines—double red' gears.

No. of Turbines Ahead ONE Direct coupled, single reduction geared } to ONE propelling shafts. No. of primary pinions to each set of reduction gearing TWO

Astern ONE (incl) 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.	ACTIVE H.P.			I.P.			L.P.			ACTIVE ASTERN		
	HEIGHT OF BLADES.	PITCH 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.	PITCH DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	1.75-1.25	2-11 1/2	2							1.8125-1.5	3-3	2
2ND	.625	3-9"	1							3.375	3-3	1
3RD	1.25	3-10 1/2	1									
4TH	2.5	4-0"	1									
5TH	6	4-2"	1									
6TH												
7TH												
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine H.P. 2500 I.P. — L.P. — Revolutions per minute, at full power, of each Turbine Shaft H.P. 3380 I.P. — L.P. — 1st reduction wheel Ratio 37.5/1 main shaft 90 Revs.

Rotor Shaft diameter at journals H.P. 8" I.P. — L.P. — Pitch Circle Diameter 1st pinion 7.883 2nd pinion 10.75 1st reduction wheel 57.666 main wheel 54.75 Width of Face 1st reduction wheel — main wheel 14.35

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 25" 2nd pinion 27.5" 1st reduction wheel — main wheel 52"

Flexible Pinion Shafts, diameter 1st — 2nd — Pinion Shafts, diameter at bearings External 1st 7" 2nd 10" diameter at bottom of pinion teeth 1st — 2nd —

Wheel Shafts, diameter at bearings 1st — 2nd — main 14" diameter at wheel shroud, 1st — 2nd — Generator Shaft, diameter at bearings — Propelling Motor Shaft, diameter at bearings —

Intermediate Shafts, diameter as per rule 12.112 as fitted 12.45 Thrust Shaft, diameter at collars as per rule 12.96 as fitted 22" — Shaft 13.25"

Tube Shaft, diameter as per rule — as fitted — Screw Shaft, diameter as per rule 14" as fitted 14" Is the tube screw shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per rule 13.7 as fitted 16 Thickness between bushes as per rule 5.25 as fitted 11/16 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 Is an approved Oil Gland or other appliance fitted at the after end of the tube 4-8"

Propeller, diameter 16-5" Pitch 12-6" No. of Blades 4 State whether Moveable Yes Total Developed Surface 762 square feet. If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine One Turbine Can the H.P. or I.P. Turbine exhaust direct to the Condenser Two Vertical 12x7 1/2" 65 G.P.M. Steam driven

Condenser No. of Turbines fitted with astern wheels One. Feed Pumps No. and size Two-7 1/2" 12x8 1/2 x 12" Horiz Eng Bege Pump 6x5 1/2 x 6" Horiz Steam driven

Pumps connected to the Main Bilge Line No. and size One-12x10x12. 17 1/2" 12x8 1/2 x 12" How driven Steam driven Lubricating Oil Pumps, including Spare Pump, No. and size 3-6x7 1/2 x 6, 7 1/2 x 8 1/2 x 10"

Ballast Pumps, No. and size Are two 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 Six @ 3 1/2 inches In Pump Room (4033 # in Main Condenser)

In Holds, &c. Two-3 1/2" in Nos 1, 2, 3, 4 & 5. No. 2 and 3 1/2" in Tunnel Well. Main Water Circulating Pump Direct Bilge Suctions, No. and size One-10" dia Independent Power Pump Direct Suctions to the Engine Room Yes

Bilges, No. and size Two-1 @ 6" & 1 @ 4" 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. Yes 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. At Deep Load One

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel. None. Are the Blow Off Cocks fitted with a spigot and brass covering plate. Yes How are they protected. Have they been tested as per rule. Yes

What pipes pass through the bunkers. No Deep tanks. 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. Yes Is it fitted with a watertight door. Yes worked from Upper deck.

BOILERS, &c.—(Letter for record ) Total Heating Surface of Boilers 8085 (oil) 2475 each (coal)

Is Forced Draft fitted No. No. and Description of Boilers 3 Single Multitubular Working Pressure 210 lbs

Is a Report on Main Boilers now forwarded? Yes.

Is a Donkey Boiler fitted? None. If so, is a report now forwarded?

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

Plans. Are (approved) plans forwarded herewith for Shafting Yes. Main Boilers Yes. Auxiliary Boilers  Donkey Boilers

Superheaters  General Pumping Arrangements Yes. Oil Fuel Burning Arrangements

Has the spare gear required by the Rules been supplied? Yes. SPARE GEAR.

State the principal additional spare gear supplied One spare tailshaft + Nut.  
One complete set of bearings for Turbines + Gears  
One set of Coupling bolts for Gear shaft.  
Three discs + three stems for boiler feed valves.  
One set of special bolts for Turbines + Gears.  
Steam + electric parts for Electric Generators

The foregoing is a correct description, Manufacturer.

Dates of Survey while building During progress of work in shops -- Machinery built 1918.  
During erection on board vessel ---  
 Total No. of visits.

Dates of Examination of principal parts—Casings  Rotors  Blading  Gearing   
 Wheel shaft  Thrust shaft  Intermediate shafts  Tube shaft  Screw shaft   
Seen at Baltimore Aug 27<sup>th</sup> 1940 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 Stated July 1940 U.S. Inspectors. Thickness of adjusting washers. No adjusting washers.

Rotor shaft, Material and tensile strength OH Steel 80,000 tin Identification Mark TQ.D. 13427 4-3-18  
 Flexible Pinion Shaft, Material and tensile strength OH Steel. Identification Mark R.2994 TQD 4/3/18  
 Pinion shaft, Material and tensile strength OH Steel (100,000). Identification Mark TQ.D. 2994 4/3/18  
 1st Reduction Wheel Shaft, Material and tensile strength OH Steel. Identification Mark X2994 TQD 4-3-

Wheel shaft, Material OH Steel Identification Mark TQD N/22 Thrust shaft, Material OH Steel Identification Mark LR 665 19/11/18 N.Y.  
 Intermediate shafts, Material OH Steel Identification Marks LR 716 W.T.F. 5-1-18. Tube shaft, Material OH Steel Identification Marks LR 410 W.C. 1-10-17.

Screw shaft, Material OH Steel. Identification Marks 26-4-17 LR T.H. Steam Pipes, Material Steel. Test pressure 265 in July 1940  
 Date of test Annual Survey U.S. Inspectors July 1940. 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

General Remarks (State quality of workmanship, opinions as to class, &c.) The Machinery + Boilers of this vessel have not been opened up for survey at this time. The information given herein has been obtained from Reference Plates, also statements which are understood to be reliable + from blue prints as found available - Copies of which are forwarded with these reports. Although the Machinery would not appear to have initially been classed with this Society, indications point to the steam turbines + gears (NOT Boilers + auxiliaries) having apparently been certified in May 1918. by the Surveyors to the Society + a partial report No 14963 entered at New York. The Machinery outwardly is clean + in very good state + in my opinion eligible for consideration of Class. Subject upon Survey in accordance with the Rules being satisfactorily completed.

The amount of Entry Fee ... £ To be collected When applied for, Oct. 22 1940  
 Special ... £ 10 : : £ 10 from Lon 14/11/40  
 Donkey Boiler Fee ... £ : : :  
 Travelling Expenses (if any) £ 2.00 : : 19

Committee's Minute Assigned Class Contemplated.  
 NEW YORK OCT 23 1940  
 Engineer Surveyor to Lloyd's Register of Shipping. C. J. Lastic



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