

# REPORT ON STEAM TURBINE MACHINERY. No. 7189

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)  
 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 Turbine—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.	H. P.			I. P.			L. P.			ASTERN		
	ACTIVE 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.	ACTIVE HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	1.25-1.25	2-11 1/2	2							1.8125-1.5	3-3	2
2ND	1.25	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 I.P. — L.P. —  
 Rotor Shaft diameter at journals H.P. 8" I.P. — L.P. —  
 Pitch Circle Diameter 1st pinion 7.883 1st reduction wheel 57.666  
 2nd pinion 10.75 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" 1st reduction wheel —  
 2nd pinion 27.5 main wheel 52"  
 Flexible Pinion Shafts, diameter at bearings External 1st 7" 2nd 10" diameter at bottom of pinion teeth 1st — 2nd —  
 Wheel Shafts, diameter at bearings 1st — main 14" diameter at wheel shroud, 1st — main —  
 Intermediate Shafts, diameter as per rule 12.12 as fitted 12.45 Thrust Shaft, diameter at collars as per rule 12.96 as fitted 12.717  
 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 525 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 Yes  
 shaft No If so, slope type Length of Bearing in Stern Bush next to and supporting propeller 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 L.P. Turbine exhaust direct to the Condenser No. and size Two Vertical 12x7 1/2 65 9.9m How driven Steam driven  
 Pumps connected to the Main Bilge Line No. and size Two-7 1/2 12x8 1/2 x 12" Horiz Eng Bge Pump 6x5 1/2 x 6" Horiz How driven Steam driven  
 Ballast Pumps, No. and size One-12x10x12 17 1/2 12x8 1/2 x 12 Lubricating Oil Pumps, including Spare Pump, No. and size 3-6x7 1/2 x 6, 7 1/2 x 8 1/2 x 10  
 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 5 1/2 @ 3 1/2 inches In Pump Room (4033 ft in Main Condenser)  
 In Holds, &c. Two-3 1/2 in N° 1, 2, 3, 4 & 5. No. 1 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 Line  
 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 Yes  
 What pipes pass through the bunkers None How are they protected Yes  
 What pipes pass through the deep tanks No Deep tanks Have they been tested as per rule Yes  
 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 Leppers 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  
(If not state date of approval)  
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,

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

Machinery built 1918.

Dates of Examination of principal parts—Casings Rotors Blading Gearing  
Wheel shaft Thrust shaft Intermediate shafts Tube shaft Screw shaft  
Seen as before Aug 27<sup>th</sup> 1940  
Propeller 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 ON Steel 80,000 lbs  
Flexible Pinion Shaft, Material and tensile strength ON Steel.  
Pinion shaft, Material and tensile strength ON Steel (100,000).  
1st Reduction Wheel Shaft, Material and tensile strength ON Steel.  
Wheel shaft, Material ON Steel Identification Mark TQD N/22 Thrust shaft, Material ON Steel Identification Mark LR 665 19/11  
Intermediate shafts, Material ON Steel Identification Marks LR 716 W.T.F. 5-1-18. Tube shaft, Material Identification Marks  
Screw shaft, Material ON Steel Identification Marks 26-4-17 LR 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  
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 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, in London. Oct. 22 1940  
Special ... £ 10 : : £ 10 from London 14/11/40  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ 2.00 : :  
When received,

Committee's Minute

Assigned Class Contemplated.

Engineer Surveyor to Lloyd's Register of Shipping.



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