

# REPORT ON STEAM TURBINE MACHINERY. No. 1373

Received at London Office 3 APR 1950

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of writing Report... 19... When handed in at Local Office... 19... Port of Cleveland, Ohio  
 in Survey held at Milwaukee, Wisconsin Date, First Survey June 28 Last Survey August 2, 1949  
 on the Main Propulsion Reduction Gears for 28000 Ton Bulk Oil Carrier Tons Gross Net  
 at Baltimore, Maryland By whom built Bethlehem S/B. Co. Yard No. 4471 When built -  
 made at Milwaukee, Wis. By whom made Falk Corp. Engine No. - When made -  
 Horse Power at Full Power 12,500 Owners - Port belonging to -  
 Horse Power as per Rule - Is Refrigerating Machinery fitted for cargo purposes - Is Electric Light fitted -  
 for which Vessel is intended -

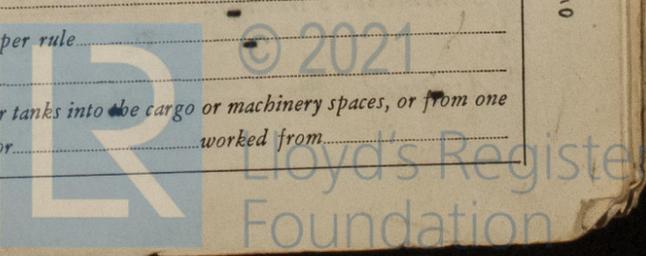
## STEAM TURBINE ENGINES, &c.—Description of Engines

of Turbines Ahead Direct coupled, single reduction geared } to one propelling shafts. No. of primary pinions to each set of reduction gearing Two  
 Astern double reduction geared }  
 coupled to { Alternating Current Generator - phase - periods per second - rated - Kilowatts - Volts at - revolutions per minute;  
 Direct Current Generator -  
 supplying power for driving - Propelling Motors, Type -  
 Kilowatts - Volts at - revolutions per minute. Direct coupled, single or double reduction geared to - propelling shafts.

TURBINE LADING.	H. P.			I. P.			L. P.			ASTERN.		
	HEIGHT OF BLADES.	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.	DIAMETER AT TIP.	NO. OF ROWS.
1st EXPANSION												
2nd												
3rd												
4th												
5th												
6th												
7th												
8th												
9th												
10th												

Shaft Horse Power at each turbine { H.P. - I.P. - L.P. - } Revolutions per minute, at full power, of each Turbine Shaft { H.P. 4688 I.P. 2625 L.P. 2625 }  
 Pinion { H.P. 4688 I.P. 2625 L.P. 2625 } 1st reduction wheel 765 main shaft 100  
 for Shaft diameter at journals { H.P. - I.P. - L.P. - } Pitch Circle Diameter { 1st pinion 20.193" 1st reduction wheel 69.304" main wheel HP 35 1/2" LP 36" 2nd pinion - } Width of Face { 1st reduction wheel 10.875" x 2 main wheel 42.500" 1st reduction wheel 13.4375" main wheel 30 1/2" HP 10.928" LP 19.813" }  
 distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion - 2nd pinion 38 3/8" }  
 Flexible Pinion Shafts, diameter at bearings { 1st - 2nd - } Pinion Shafts, diameter at bearings { External 6.986" Internal 8.985" } 1st 17.975" 2nd 17.975" } diameter at bottom of pinion teeth { 1st 17.975" 2nd 21.411" }  
 Wheel Shafts, diameter at bearings { 1st 17.975" main 22.477" } diameter at wheel shroud, integral gears { 1st 69.590" main 168.311" } Generator Shaft, diameter at bearings - Propelling Motor Shaft, diameter at bearings -  
 Intermediate Shafts, diameter as per rule - as fitted - Thrust Shaft, diameter at collars as per rule 22.475" as fitted - Tube Shaft, diameter as per rule - as fitted -  
 New Shaft, diameter as per rule - as fitted - Is the { tube screw } shaft fitted with a continuous liner - Bronze Liners, thickness in way of bushes as per rule - as fitted -  
 thickness between bushes as per rule - as fitted - Is the after end of the liner made watertight in the propeller boss - If the liner is in more than one length are the junctions -  
 made 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 - Is an approved Oil Gland -  
 plastic material insoluble in water and non-corrosive - If two liners are fitted, is the shaft lapped or protected between the liners -  
 other appliance fitted at the after end of the tube shaft - Length of Bearing in Stern Bush next to and supporting propeller - square feet. -  
 Propeller, diameter - Pitch - No. of Blades - State whether Moveable - Total Developed Surface - Can the H.P. or I.P. Turbine exhaust direct to the -  
 Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine -  
 Condenser - No. of Turbines fitted with astern wheels - Feed Pumps { No. and size - How driven - }  
 Pumps connected to the Main Bilge Line { No. and size - How driven - }  
 Bilge Pumps, No. and size - Lubricating Oil Pumps, including Spare Pump, No. and size - Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge -  
 two independent means arranged for circulating water through the Oil Cooler -  
 Pumps, No. and size:—In Engine and Boiler Room -  
 Holds, &c. - Independent Power Pump Direct Suctions to the Engine Room -  
 Bilge Suctions, No. and size - Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes -  
 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 -  
 all Sea Connections fitted direct on the skin of the ship - Are they fitted with Valves or Cocks -  
 they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates - Are the Overboard Discharges above or below the deep water line -  
 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 -  
 at pipes pass through the bunkers - How are they protected -  
 at pipes pass through the deep tanks - Have they been tested as per rule -  
 all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times -  
 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 - Is the Shaft Tunnel watertight - Is it fitted with a watertight door - worked from -

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**BOILERS, &c.**— (Letter for record.....) Total Heating Surface of Boilers..... Working Pressure.....  
 Is Forced Draft fitted..... No. and Description of Boilers.....  
 Is a Report on Main Boilers now forwarded?..... If so, is a report now forwarded?.....  
 Is { a Donkey } Boiler fitted?..... Gears..... Main Boilers..... Auxiliary Boilers..... Donkey Boilers.....  
 Plans. Are approved plans forwarded herewith for ~~Shipping~~..... See Cleve. Report No. 1349  
 (If not state date of approval).....  
 Superheaters..... General Pumping Arrangements..... Oil Fuel Burning Arrangements.....  
 Spare Gear. State the articles supplied:..... As per Rule Requirements

The foregoing is a correct description,

Dates of Examination of principal parts—Casings..... Rotors..... Blading..... Gearing.....  
 Wheel shaft..... June 28 1949 Thrust shaft..... July 14 1949 Intermediate shafts..... Tube shaft..... Screw shaft.....  
 Propeller..... Stern tube..... Engine and boiler seatings..... Engine holding down bolts.....  
 Completion of pumping arrangements..... Boilers fixed..... Engines tried under steam.....  
 Main boiler safety valves adjusted..... Thickness of adjusting washers..... Identification Mark.....  
 Rotor shaft, Material and tensile strength..... Identification Mark.....  
 Flexible Pinion Shaft, Material and tensile strength..... ) HP 100,000 psi Identification Mark Lloyds 7290  
 Pinion shaft, Material and tensile strength O.H. Forge Steel } 1st Red. LP 101,000 psi Identification Mark Lloyds 7274  
 } 2nd Red. HP 105,500 psi Identification Mark Lloyds 7064  
 } LP 104,500 psi Identification Mark Lloyds 7160  
 1st Reduction Wheel Shaft, Material and tensile strength..... Integral with shaft Identification Mark L.R. 3824  
 Wheel shaft, Material Forge Steel Identification Mark Lloyds 3824 Thrust shaft, Material.....  
 Intermediate shafts, Material..... Identification Marks..... Tube shaft, Material..... Identification Marks.....  
 Screw shaft, Material..... Identification Marks..... 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.....  
 Is this machinery a duplicate of a previous case yes If so, state name of vessel Bethlehem S/B. Co. Hull 4470

**General Remarks** (State quality of workmanship, opinions as to class, &c.) This set of main propulsion, double reduction, double helical gears was constructed under Special Survey in accordance with approved plans and the Rules of this Society. The materials were tested by the Surveyors and the workmanship is of good quality throughout. On completion the unit was subjected to a series of running tests at the Manufacturer's Plant, including max. RPM and torque. The gearing was observed in a satisfactory manner under all conditions of loading both ahead and astern. The gear was subsequently disassembled, examined and all parts found in good condition. It is recommended that this gear unit become part of the machinery of a vessel classed with this Society subject to satisfactory installation and performance under actual working conditions to the Surveyors satisfaction.

*L. D. A. Johnson*  
 Acting Surveyor to Lloyd's Register  
*R. S. Hovagensen*  
 Engineer Surveyor to Lloyd's Register of Shipping.

The amount of Entry Fee	£ 350 : 00	When applied for, Nov. 14, 1949
Special	£ :	
Donkey Boiler Fee	£ :	When received, 19
Travelling Expenses (if any)	£ 175 : 00	

Committee's Minute NEW YORK MAR 15 1950

Assigned *See First Entry Report attached.*



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