

EC 1549  
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# REPORT ON STEAM TURBINE MACHINERY. No. 1373

Received at London Office **12 DEC 1949**

D.O.

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

g. Book 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 By whom made Engine No. When made

ers made at Milwaukee, Wis. By whom made Falk Corp. -Boiler No. 422500-5 When made 8.1949

ft Horse Power at Full Power 12,500 Owners - Port belonging to -

m. Horse Power as per Rule - Is Refrigerating Machinery fitted for cargo purposes - Is Electric Light fitted -

de 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

ct coupled to { Alternating Current Generator - phase - periods per second } rated - Kilowatts - Volts at - revolutions per minute;  
Direct Current Generator }

upplying power for driving - Propelling Motors, Type -

d - 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												
11th												
12th												
13th												
14th												
15th												

ft Horse Power at each turbine { H.P. - Pinion { H.P. 4688 1st reduction wheel 765  
I.P. - } I.P. - }  
L.P. - } L.P. 2625 main shaft 100 ✓

or Shaft diameter at journals { H.P. - Pitch Circle { 1st pinion 20.193" 1st reduction wheel 69.301" Width of { 1st reduction wheel 10.875" x 2  
I.P. - } Diameter { 2nd pinion - main wheel - } Face { main wheel 42.500"  
L.P. - }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion HP 35 1/2" 1st reduction wheel 13.4375"  
2nd pinion 38 3/8" main wheel 30 1/4" HP 10.928" 1st LP 19.813"  
2nd LP 21.411"

lexible Pinion { 1st - Pinion Shafts, diameter at bearings { 1st 6.985" 2nd 17.975" diameter at bottom of pinion teeth { 1st LP 19.813"  
2nd - } 2nd 8.985" 2nd 17.975" } 2nd LP 21.411"

heel Shafts, diameter at bearings { 1st 17.975" diameter at wheel shroud, { 1st 69.590" Generator Shaft, diameter at bearings -  
main 22.477" integral gears { main 168.311" Propelling Motor Shaft, diameter at bearings -

Intermediate Shafts, diameter as per rule - Thrust Shaft, diameter at collars as per rule - Tube Shaft, diameter as per rule -  
as fitted - as fitted 22.475" as fitted -

ew Shaft, diameter as per rule - Is the { tube } shaft fitted with a continuous liner { - } Bronze Liners, thickness in way of bushes as per rule -  
as fitted - as fitted - screw }

ickness between bushes as per rule - 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  
as fitted -

le 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  
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  
other appliance fitted at the after end of the tube shaft - Length of Bearing in Stern Bush next to and supporting propeller - square feet.

opeller, diameter - Pitch - No. of Blades - State whether Moveable - Total Developed Surface - square feet.  
Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine - Can the H.P. or I.P. Turbine exhaust direct to the

ndenser - 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 -

last Pumps, No. and size - Lubricating Oil Pumps, including Spare Pump, No. and size -  
two independent means arranged for circulating water through the Oil Cooler - Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

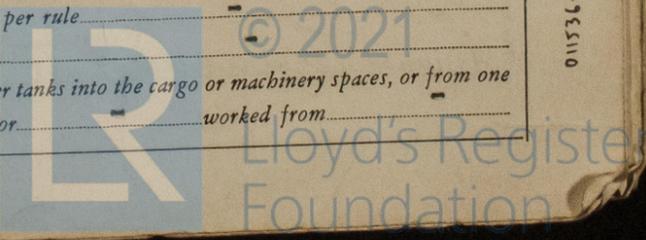
pumps, No. and size:—In Engine and Boiler Room -

Holds, &c. - Independent Power Pump Direct Suctions to the Engine Room

in Water Circulating Pump Direct Bilge Suctions, No. and size - Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes -

ges, No. and size - Are they fitted with Valves or Cocks -

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 the Overboard Discharges above or below the deep water line -  
they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates - Are the Blow Off Cocks fitted with a spigot and brass covering plate -  
they each fitted with a Discharge Valve always accessible on the plating of the vessel - How are they protected -  
at pipes pass through the bunkers - Have they been tested as per rule -  
at pipes pass through the deep tanks -  
all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times -  
be 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  
partment 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  
 Is Forced Draft fitted No. and Description of Boilers Working Pressure  
 Is a Report on Main Boilers now forwarded?  
 Is { a Donkey } Boiler fitted? Gears Main Boilers Auxiliary Boilers Donkey Boilers  
 { an Auxiliary } If so, is a report now forwarded?  
 Plans. Are approved plans forwarded herewith for ~~Shipping~~ (If not state date of approval) See Cleve. Report No. 1349  
 Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements  
 Spare Gear. State the articles supplied: As per Rule Requirements

T.V.C approved Secs letter of 14-7-49 for Service Spec of 100 R.P.M.

The foregoing is a correct description.

Dates of Survey while building { During progress of work in shops -- } June 28, July 14, 15, 27, 28 August 10, 26, 29, 1949 ( 8 visits construction )  
 { During erection on board vessel -- }  
 { Total No. of visits }  
 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  
 Rotor shaft, Material and tensile strength Identification Mark  
 Flexible Pinion Shaft, Material and tensile strength Identification Mark  
 Pinion shaft, Material and tensile strength O.H. Forge Steel } 1st Red. HP 100,000 psi Identification Mark Lloyds 7290 ✓  
 } 2nd Red. LP 101,000 psi Identification Mark Lloyds 7274 ✓  
 1st Reduction Wheel Shaft, Material and tensile strength } 2nd Red. HP 105,500 psi Identification Mark Lloyds 7064 ✓  
 } LP 104,500 psi Identification Mark Lloyds 7160 ✓  
 Wheel shaft, Material Forge Steel Identification Mark Lloyds 3824 ✓ Thrust shaft, Material integral with shaft Identification Mark L.R. 3824 ✓  
 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 1470

**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. See above

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

For D.A. Johnson  
 Acting Surveyor to Lloyd's Register  
 R.S. Haugen  
 Engineer Surveyor to Lloyd's Register of Shipping.

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

NEW YORK NOV 23 1949  
 Committee's Minute  
 Assigned Transit to Hudson

