

Reduction Gears for  
**REPORT ON STEAM TURBINE MACHINERY.** No. 1349

pt. 4a.

of writing Report. 19. When handed in at Local Office. 19. Port of **Cleveland, Ohio**  
in Survey held at **Milwaukee, Wisconsin** Date, First Survey **3 August 48.** Last Survey **16 Feb.** 19. 49  
Reg. Book  
on the **Main Propulsion Reduction Gears for 28000 Ton Bulk Oil Carrier**  
ilt at **Baltimore, Maryland** By whom built **Bethlehem Sparrows Point Shipyard Inc.** Yard No. **4467** Tons {Gross  
Engines made at **Milwaukee, Wisconsin** By whom made **Falk Corporation** Engine No. **422-500-A** When built **1949**  
Horse Power at Full Power **12,500** Owners **Falk Corporation** Boiler No. **422-500-A** When made **1949**  
Horse Power as per Rule **-** Is Refrigerating Machinery fitted for cargo purposes **-** Port belonging to **-**  
ade for which Vessel is intended **-** Is Electric Light fitted **-**

**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 }  
Direct coupled to { Alternating Current Generator **-** phase **-** periods per second } rated **-** Kilowatts **-** Volts at **-** revolutions per minute;  
supplying power for driving **-** Propelling Motors, Type **-**  
d **-** Kilowatts **-** Volts at **-** revolutions per minute. Direct coupled, single or double reduction geared to **-** propelling shafts.

TURBINE LOADING.	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												

ft Horse Power at each turbine { H.P. **-**  
I.P. **-** Pinion { H.P. **4688**  
L.P. **-** 1st reduction wheel **765**  
Revolutions per minute, at full power, of each Turbine Shaft { I.P. **-**  
L.P. **2625** main shaft **100**  
Shaft diameter at journals { H.P. **-** Pitch Circle { 1st pinion **20.193"** 1st reduction wheel **69.304"** Width of { 1st reduction wheel **10.875"x2**  
I.P. **-** Diameter { 2nd pinion **21.951"** main wheel **167.911"** Face { main wheel **42.500"**  
L.P. **-**

tance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion **HP. 35.500"** 1st reduction wheel **13.4375"**  
LP. **36.000"**  
2nd pinion **38.75"** main wheel **30.25"**

Pinion Shafts, diameter at bearings { 1st **HP. 6.986"** 1st **17.975"** HP. **10.928"**  
2nd **LP. 8.985"** 2nd **17.975"** LP. **19.813"**  
diameter at bottom of pinion teeth { 2nd **21.411"**

Wheel 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 **-** screw { as fitted **-**

Thickness 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 **-** 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

appliance fitted at the after end of the tube shaft **-** Length of Bearing in Stern Bush next to and supporting propeller **-**  
propeller, 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  
tenser **-** No. of Turbines fitted with astern wheels **-** Feed Pumps { No. and size **-**  
How driven **-**

connected to the Main Bilge Line { No. and size **-**  
How driven **-**  
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  
bs, No. and size:—In Engine and Boiler Room **-**

Holds, &c. **-**  
Water Circulating Pump Direct Bilge Suctions, No. and size **-** Independent Power Pump Direct Suctions to the Engine Room  
s, 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 **-**

pipes pass through the bunkers **-** How are they protected **-**  
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 **-**  
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? — If so, is a report now forwarded? —  
 { an Auxiliary }

Plans. Are approved plans forwarded herewith for <sup>Gears</sup>Shafting — Yes Main Boilers — Auxiliary Boilers — Donkey Boilers —  
 (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,

Manufacturer

Dates of Survey while building { During progress of work in shops -- } 3 Aug. 5 Oct. 10 Dec. 1948 18-19 Jan. 14-15-16 Feb. 1949.  
 { During erection on board vessel -- }  
 Total No. of visits 8

Dates of Examination of principal parts—Casings — Rotors — Blading — 19 Jan. 49  
 Gearing 16 Feb. 49

Wheel shaft 19 Jan. 49 Thrust shaft 19 Jan. 49 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. Forged Steel HP. 107000 psi LP. 108,500 psi Identification Mark Lloyd's 1623)

1st Reduction Wheel Shaft, Material and tensile strength O.H. Forged Steel HP. 108500 - 109500 psi Identification Mark Lloyd's 1688) 19 Jan. 49

Steel Lloyd's 3620 LP. 97500 - 99500 psi Identification Mark Lloyd's 1682) LAD.

Wheel shaft, Material O.H. Forged Steel Identification Mark 19.1.49 LAD. Thrust shaft, Material Integral with main wheel shaft Identification Mark

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 <sup>gearing</sup>machinery a duplicate of a previous case No If so, state name of vessel —

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 the 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 works including maximum R.P.M. and Torque. The gearing was observed to operate in a satisfactory manner under all conditions of loading, ahead and astern. The gearing was afterwards dismantled, carefully examined and found in good condition. The gear components were subsequently despatched to the shipbuilders for installation. It is recommended this set of reduction gears be incorporated in the vessel's Machinery Record, subject to being installed on board and tested under working conditions to the satisfaction of the Society's Surveyor.

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

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

NEW YORK JUL 27 1949

Assigned See First Entry Report Vol. 89, 11 attached



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