

Rpt. 4a.

## Report on Steam Turbine Machinery.

No. 11353

Date of writing Report Dec. 19 57 When handed in at Local Office Mar 24, 19 58 Port of Baltimore, Maryland Received at London Office 19 MAY 1958  
No. in Survey held at Sparrows Point Date, First Survey May 31st, 57 Last Survey December 17th 1957  
Reg. Book 42454 on the S.S. "GULFQUEEN" (Number of Visits 37)  
Built at Sparrows Point By whom built Bethlehem Sparrows Point Shipyard, Inc. Yard No. 4553 When built 1957  
Engines made at Quincy, Mass. By whom made Bethlehem Steel Co. Engine No. 1639-H-6 When made 1957  
Boilers made at Mountaintop, Pa. By whom made Foster Wheeler Inc. Boiler No. 3980 When made 1957  
Shaft Horse Power at Full Power 13,600 Owners Black Steamships, Inc. Port belonging to Wilmington, Del.  
Nom. Horse Power as per Rule 3000 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.  
Trade for which Vessel is intended Carrying Petroleum in Bulk.

## STEAM TURBINE ENGINES, &amp;c.—Description of Engines. See Attached Report No. 4810

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

Impulse Blading	No. of rows	No. of stages	No. of rows in each stage
Reaction Blading			

Shaft Horse Power at each turbine H.P. I.P. L.P. Revolutions per minute, at full power, of each Turbine Shaft HP-10-931 HP 69-543 LP-19-977 LP-69-543

Rotor Shaft diameter at journals H.P. I.P. L.P. Pitch Circle Diameter 1st pinion LP-19-977 1st reduction wheel LP-69-543 2nd pinion - main wheel 174.70" LP 36-0" LP 36.5"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion LP 36-0" 1st reduction wheel 29.125" 2nd pinion 39.75" main wheel 32.0"

Flexible Pinion Shafts, diameter at bearings 1st 17.975" 2nd 23.974" Pinion Shafts, diameter at bearings External HP-6-985 HP 17-975 LP-8-985 LP 17.975 Internal HP 19-477 LP 19.523 2nd 22.312

Wheel Shafts, diameter at bearings 1st 17.975" main 23.974" diameter at wheel shroud, 1st - Generator Shaft, diameter at bearings - main - Propelling Motor Shaft, diameter at bearings -

Intermediate Shafts, diameter as per rule 20.5 as fitted 20.25 Thrust Shaft, diameter at collars as per rule 17.75 as fitted 17.75

Tube Shaft, diameter as per rule - as fitted - Screw Shaft, diameter as per rule 29.0625 as fitted 29.0625 Is the tube screw shaft fitted with a continuous liner Yes.

Bronze Liners, thickness in way of bushes as per rule 1.1875 as fitted 1.1875 Thickness between bushes as per rule .875 as fitted .875 Is the after end of the liner made watertight in the propeller boss Yes.

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 or other appliance fitted at the after end of the tube shaft. If so, state type. Length of Bearing in Stern Bush next to and supporting propeller 9' 2"

Propeller, diameter 22" Pitch 18.9 No. of Blades 5 State whether Moveable No Total Developed Surface 199.6 square feet. If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes. Can the H.P. or I.P. Turbines exhaust direct to the

Condenser Yes. No. of Turbines fitted with astern wheels 1 LP Feed Pumps No. and size 3 Centrifugal 350 GPM Each How driven Turbine

Pumps connected to the Main Bilge Line No. and size 1-150 GPM. 2-400 GPM Each 2-100 GPM Each How driven Steam Electric Motor Steam

Ballast Pumps, No. and size 1-700 GPM & 1-150 GPM Lubricating Oil Pumps, including Spare Pump, No. and size 2-450 GPM Each Are two independent means arranged for circulating water through the Oil Cooler Yes. Suctions, connected both to Main Bilge Pumps and Auxiliary

Bilge Pumps, No. and size:—In Engine and Boiler Room Engineroom 1-5", 2-2 1/2", 1-3 1/2" In Pump Room For 1-3" In Holds, &c. Dry Cargo Hold 2-3" Bosuns Store in Fore-Peak Spaces 2-2 1/2" 2-5" confirmed

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1-18" Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size - 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 Valves

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 Below 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 -

What pipes pass through the deep tanks 4" Ballast Main 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. Is it fitted with a watertight door worked from.

BOILERS, &c.—(Letter for record 2 WT.) Total Heating Surface of Boilers 18,538 SQ. FT. 18,539 Designed 700 PSI Is Forced Draft fitted Yes. No. and Description of Boilers 2 Foster Wheeler D Type Working Pressure 600 PSI

Is a Report on Main Boilers now forwarded? Yes.



LP Steam Generator

Is ~~a Donkey~~ ~~an Auxiliary~~ Boiler fitted? Yes If so, is a report now forwarded? Yes  
Is the donkey boiler intended to be used for domestic purposes only Yes.  
Plans. Are approved plans forwarded herewith for Shafting Sept. 20, 1956. Main Boilers Nov. 27, 1957 LP Steam Generator June 8, 1956  
(If not, state date of approval)  
Superheaters Nov. 27th. 1956 General Pumping Arrangements 26-9-56 Oil Fuel Burning Arrangements 26-9-56  
Geared turbines situated aft. Have torsional vibration characteristics of system been approved. - Date of approval Not yet received

SPARE GEAR.

Has the spare gear required by the Rules been supplied. Yes  
State the principal additional spare gear supplied. In excess of Rule Requirements Including Screwshaft Lloyds.  
Set of Bearing Shell for all gearing Journals, Set of Bearing Shells for all Turbine Journals Turbine  
Rings, Impellers & Shafts for all essential service pumps, Ball races for all Rotary pumps, Piston & Bucket  
Suction & Delivery Valves for reciprocating pumps.  
Boiler Spares Include, 1 Feed Water check valve, Spare tubes & tube plugs for all required tube sizes, Spare  
complete with tips.

The foregoing is a correct description.

*[Signature]*  
BETHLEHEM-SPARROWS POINT  
SHIPYARD, INC.  
SPARROWS POINT, MD.

Dates of Survey while building During progress of work in shops - May 31st. June 7th. July 18th. Aug. 6, 7, 12, 13, 15, 19, 20, 21, 23, 26, 29, Sept. 3, 5, 9, 10, 11  
During erection on board vessel - Oct. 1, 14, 16, 18. Nov. 5, 18, 19, 21, 25, December 2, 3, 11, 12, 13, 16, & 17th.  
Total No. of visits 37

Dates of Examination of principal parts - Casings - Rotors - Blading - Gearing 1st  
ABS Milwaukee Collar ABS  
Wheel shaft 5th. June '57 Thrust shaft 17th. Jan. '57 Intermediate shafts 15th. Feb. '57 Tube shaft - Screw shaft 31st  
Propeller 1st. Aug. '57 Stern tube 17th. Sept. '57 Engine and boiler seatings 13th. Aug. '57 Engine holding down bolts 16th  
Completion of fitting sea connections 24th. Sept. '57 Completion of pumping arrangements 27 Nov. '57 Boilers fixed 3 Nov. '57 Engines tried under steam  
Main boiler safety valves adjusted 25th. Nov. '57 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 HP. & LP. O.H. Forced Steel Identification Mark HP AB28 LP AB 2

; Chemical analysis - American Bureau Certificates Attached.

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment See attached

1st Reduction Wheel Shaft, Material and tensile strength HP & LP. O.H. Forged Steel. Test sheets attached. Identification Mark HP. ABS LP. ABS

Wheel shaft, Material O.H. Forged Steel Identification Mark ABS 4256 Thrust shaft, Material OH Forged Steel Identification Mark

Intermediate shafts, Material Steel Identification Marks Lloyds PHL RK 0882 Tube shaft, Material - Identification Marks

Screw shaft, Material Steel Identification Marks Lloyds PHL RK 6995 Carbon Moly Seamless Steel & Ex-heavy Seamless Test pressure

Date of test Numerous during construction 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

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. Yes. If so, state name of vessel. S.S. "GULFKING"

General Remarks. (State quality of workmanship, opinions as to class, &c.) The machinery of this vessel has been built under

Special Survey in accordance with the Society's Rule & approved plans & Secretaries letters with the exception of  
main gearing which was inspected at place of manufacture in the American Bureau of Shipping whose test certificates  
are attached. Prior to assembly the gears were surface examined by the undersigned surveyors & the workman  
material as far as now seen considered satisfactory. All markings verified, during installation the tooth  
was witnessed and considered good.

For main turbines please see Boston Report No. 4810

The two water tube boilers were erected & tested in place, the main & auxiliary machinery tested under working  
conditions and proved to be in safe and efficient order. All workmanship is considered good.

This vessel appears eligible to be classed with this Society with the Notation in the Register Book of H.M.  
fitted for oil fuel F.P. above 150°F.

The approved plans have been retained for Hulls 4554 & 4555.

The amount of Entry Fee \$940.00 When applied for Mar. 25, 1958  
Special ... :  
Donkey Boiler Fee ... :  
Travelling Expenses (if any) \$104.00 :  
When received

Committee's Minute NEW YORK APR 30 1958  
Assigned + LMC. N. 12.57.

19.5.58



Lloyd's Register Foundation