

Rpt. 4a.

REPORT ON STEAM TURBINE MACHINERY. No. 7585

Received at London Office

Date of writing Report 18th Dec. 1941 When handed in at Local Office 19th Dec. 1941 Port of Baltimore, Maryland

No. in Survey held at Baltimore, Maryland

Date, First Survey 23 - 9 - 40

Last Survey 7 - 10 - 1941

Reg. Book.

(Number of Volls 42)

on the S.S. "CADDON"

Tons } Gross 5590

Net 5528

Built at Sparrows Point, Md.

By whom built Bethlehem Steel Co.

Yard No. 4354

When built 1941

Engines made at Essington, Pa.

By whom made Westinghouse E & M. Co.

Engine No. 9302

When made 1941

Boilers made at Carteret, N. J.

By whom made Foster-Wheeler Corp.

Boiler No. 451 - 2

When made 1941

Shaft Horse Power at Full Power 12000

Owners Sacony-Vacuum Oil Co.

Port belonging to New York, N. Y.

Nom. Horse Power as per Rule 2337

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted Yes

Trade for which Vessel is intended

Carrying Oil in bulk

STEAM TURBINE ENGINES, &c.—Description of Engines Impulse, reaction cross compound

No. of Turbines Ahead two ✓ Direct coupled, single reduction gear to 1 propelling shafts. No. of primary pinions to each set of reduction gearing two ✓
Astern one ✓ double reduction geareddirect coupled to Alternating Current Generator - phase - periods per second } rated - Kilowatts - Volts at - revolutions per minute;
Direct Current Generator }

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.		
	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 Impulse Stage	1.12" to	23.12"	1									
2nd 1st Blade	2.26"	24.26"	1									
3rd continuous	(1.14" to	16.28" to	6				1.27" to	30.54" to	5	1.40" to	30.65"	1 1st
4th taper	(1.59"	17.45"					3.47"	35.00"		2.82"	32.07"	1 stage
5th 2nd Blade	(1.81" to	17.65" to	8				4.47" to	37.00" to	5	2.25"	32.00"	1 2nd
6th continuous	(3.06"	20.18"					3.98"	48.00"		3.61"	33.36"	1 stage
7th taper												
8th "												
9th "												
10th "												
11th "												
12th "												

Shaft Horse Power at each turbine } H.P. 5300 ✓
I.P. -
L.P. 6700 ✓

Revolutions per minute, at full power, of each Turbine Shaft } H.P. 6353 ✓
I.P. -
L.P. 4503 ✓

Rotor Shaft diameter at journals } H.P. 5" ✓
I.P. -
L.P. 1 1/4" ✓

Pitch Circle Diameter } 1st pinion 3.369 LP ✓
2nd pinion 25.912 ✓

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings } 1st pinion 15-5/8" ✓
2nd pinion 3'4" ✓

Flexible Pinion Shafts, diameter } 1st 5" ✓
2nd 5" ✓

Pinion Shafts, diameter at bearings } External 1st 5-1/2" ✓
Internal 2nd 4" ✓

Wheel Shafts, diameter at bearings } 1st 16" ✓
main 25" ✓

Intermediate Shafts, diameter } as per rule 19.4" ✓
as fitted 19.5" ✓

Screw Shaft, diameter } as per rule 21-1/16" ✓
as fitted 22-1/16" ✓

Thrust Shaft, diameter at collars } as per rule Kingsbury type fitted ✓
as fitted to main wheel shaft ✓

Bronze Liners, thickness in way of bushes } as per rule .95" ✓
as fitted 1-1/8" ✓

Thickness between bushes as per rule 1-7/64 ✓
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 -
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 No ✓
Length of Bearing in Stern Bush next to and supporting propeller 7'4" ✓

Propeller, diameter 19'8" ✓ Pitch 18'10" ✓ No. of Blades 4 ✓ State whether Moveable No ✓ Total Developed Surface not given 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. Turbine exhaust direct to the

Condenser Yes ✓ No. of Turbines fitted with astern wheels one ✓ Feed Pumps } No. and size 3 - 250 gals. per min. at 4000 revolutions ✓
steam turbine 6-stage horiz. centr. DeLaval

Pumps connected to the Main Bilge Line } No. and size (1-400 GPM) ✓
GSP Bilge E.R. } How driven }
1 - 175 GPM } 1 - 75 GPM } 1 - 75 GPM }

Ballast Pumps, No. and size } 1-300 GPM } Rot. Turb. } Cent. Motor } Pump G.S.P. 1-400 }
1-600 GPM } Rot. Turb. } Rot. Motor } Rot. Turb. }

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 2 - 3"; 4 - 2"; 1 - 4" ✓

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 1 - 4" ✓ Are all the Bilge Suction pipes in Hold and Tank rooms 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 Built up sea chests Are they fitted with Valves or Cocks Valves

Are they fixed sufficiently high on the ship's side to be seen without lifting the stowhold 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 pipes fitted with a spigot and brass covering plate welded

What pipes pass through the bunkers None ✓ How are they protected - ✓

What pipes pass through the deep tanks Fore Peak Ballast Line 3-1/2" ✓ 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 - ✓

BOILERS, 30.-(Letter for record) Total Heating Surface of Boilers 14960 sq. ft. 7400
Is Forced Draft fitted Yes No. and Description of Boilers 2 Foster Wheeler Water Tube Working Pressure 420 lbs. sq. in.
Is a Report on Main Boilers now forwarded? Yes
Is a Donkey Boiler fitted? No If so, is a report now forwarded?
Plans. Are approved plans forwarded herewith for Shafting 18-7-40 Main Boilers 10-7-40 Auxiliary Boilers Donkey Boilers
(If not state date of approval)
Superheaters 10-7-40 General Pumping Arrangements 18-11-40 Oil Fuel Burning Arrangements 12-6-40
Spare Gear. State the articles supplied. Spare gear has been supplied in excess of the Rule Requirements. Copy attached.

The foregoing is a correct description,

J. A. Hodge

BETHLEHEM SPARROWS POINT
SHIPYARD, INC.
SPARROWS POINT, MD.
Manufacturers

Dates of Survey while building { During progress of work in shops -- 10, 27, Mar.; 15, 29, Apr.; 5, 10, 21, 27, May; 3, 11, 23, 27, 30 June; 2nd July 1941
During erection on board vessel -- 1940 Sept. 23, 24; Oct. 9, 17, 25; Nov. 11; 1941 Jan. 10; Feb. 17; Mar. 6, 11; Apr. 25, May 7, 8, 16;
Total No. of visits June 26, July 16, 17, 24, Aug. 23, 27, 29; Sept. 6, 11, 12, 13, 15, 17, 19, 20, 22, 25; Oct. 7; 46 total
Dates of Examination of principal parts-Casings 2nd July Rotors LP 27th May HP 27th May LP 2nd July Blading LP 2nd July Gearing 2nd July
Wheel shaft 2nd July Thrust shaft Intermediate shafts 16th July Tube shaft Screw shaft 8th May
Propeller 8th May Stern tube 26th June Engine and boiler sealings 25th April Engine holding down bolts 16th May
Completion of pumping arrangements 27th Aug. Boilers fired 16th May Engines tried under steam 20 Sept.
Main boiler safety valves adjusted 17th Sept. Thickness of adjusting washers HP 86500 88000 87000 82500 HP 4215 WHR
Rotor shaft, Material and tensile strength O.H. Steel LP 87000 88000 95500 91670 Identification Mark LP 4246 WHR
Flexible Pinion Shaft, Material and tensile strength O. H. Steel LP 79000 HP 81250 Identification Mark 1374 RWS
Pinion shaft, Material and tensile strength O.H. Steel LP 99500 HP 108500 lbs. Identification Mark 1369 RWS
1st Reduction Wheel Shaft, Material and tensile strength O.H. Steel HP 99500 HP 105500 lbs. Identification Mark 4203 WHR 1405 JWB
Wheel shaft, Material CH Steel Identification Mark 6195 ON Thrust shaft, Material Identification Mark
Intermediate shafts, Material O H Steel Identification Marks 9039 JVCM Tube shaft, Material Identification Marks
Screw shaft, Material O H Steel Identification Marks 6863 HEC Steam Pipes, Material Seamless Steel Test pressure 1000 lbs sq. in.
Date of test 11th Sept. 41 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
Is this machinery a duplicate of a previous case Yes If so, state name of vessel S.S. "CORSIKANA"

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 Rules. Please refer to reports from New York No. 41039, Boston, Mass. No. 3643 - 4, and Philadelphia No. 8096, also forging and casting reports which are attached to this report. ed receive Same has now been installed and fitted in the vessel inclusive of the erection and completion of the Water tube boilers and their accessories and all auxiliaries, and the workmanship and material throughout is good. The propelling machinery and all auxiliaries have been tested under full working conditions and the machinery is in safe working condition and eligible to have the record of S.L.M.C. 10,41, also fitted for oil fuel 10,41 F.P. above 150° F. made in the register book.

Please note:- The HP. turbine unit intended for the sister ship (No.4353) was installed in this vessel, and vice versa. Also the flexible pinion shaft had a 4" hole bored through it, and the flexible pinion shaft coupling at the turbine end was altered to a solid coupling. These alterations were approved by the New York Office.

The amount of Entry Fee ... £ : 30.00 When applied for, Dec. 18, 1941
Special ... £ : 264.00
Donkey Boiler Fee ... £ : Late fee 10.00 When received, 19
Travelling Expenses (if any) £ : 86.00

Robert H. Stonehouse
Engine Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK DEC 30 1941

Assigned + L M C - 10, 41.

(494) 490 lbs.



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Foundation