

REPORT ON STEAM TURBINE MACHINERY. No. 8723.

Received at London Office 16 FEB 1949

of writing Report 31 Dec. 1948 When handed in at Local Office 31 Dec. 1948 Port of Baltimore, Maryland
 in Survey held at Baltimore, Maryland Date, First Survey 27th July Last Survey 16th November, 1948
 eg. Book (Number of Visits 18)
 on the SS "OLYMPIC GAMES" Tons {Gross 10901 Net 6549
 built at Sparrows Point, Maryland By whom built Bethlehem Sparrows Point Yard No. 4463 Shipyard, Inc. H.P. 4A2350 When built 1948
 engines made at Lester, Pa. By whom made Westinghouse Engine No. L.P. 4A2351 When made 1945
 boilers made at Carteret, N. J. By whom made Foster Wheeler Boiler No. 2808 & 2807 When made 1945
 shaft Horse Power at Full Power 5500 Owners Sociedad Industrial Maritima Port belonging to Puerto Cortez
 nominal Horse Power as per Rule (1022) MN=1377 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
 made for which Vessel is intended Carrying Petroleum in bulk.

STEAM TURBINE ENGINES, &c.—Description of Engines Cross Compound Impulse Reaction Turbine with Double Reduction Gears.

of Turbines Ahead Two ~~Direct coupled,~~ ^{single reduction geared} } to one propelling shafts. No. of primary pinions to each set of reduction gearing Two (1-H.P. 1-L.P.)
 Astern One ~~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 -
 - 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	1 1/8"	21 1/8"	1	-	-	-	-	-	-	1 1/8"	32 1/8"	1
2nd " Impulse	1 1/2"	21 1/8"	1	-	-	-	-	-	-	2"	32 3/4"	1
3rd " "	1 1/4" tapers	14.154"	-	-	-	-	1 3/4" tapers	28.365"	6	4"	34"	1
4th " "	to 1 11/16" to 15.053"	-	8	-	-	-	to 3 5/16" to 31.558"	-	-	-	-	-
Reaction	-	-	-	-	-	-	-	-	-	-	-	-
5th " "	1 11/16" tapers	14.967"	11	-	-	-	4" tapers	32.956"	5	-	-	-
6th " "	to 2 3/4" to 17.281"	-	-	-	-	-	to 9 7/16" to 44.00"	-	-	-	-	-

Horse Power at each turbine { H.P. 2750 I.P. 5410 L.P. 2750 }
 H.P. 6,847" 1st reduction wheel 630
 L.P. 3907 main shaft 100

Shaft diameter at journals { H.P. 4" I.P. 6.25" L.P. 6.25" }
 Pitch Circle Diameter { 1st pinion L.P. 9.480" 2nd pinion 17.696" }
 Width of Face { 1st reduction wheel 17" main wheel 31.75" }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 29.350" 2nd pinion 32.75" }
 1st reduction wheel 32.75" main wheel 25.25" 6.04"

Pinion Shafts, diameter at bearings { 1st 4" 2nd solid } External 1st { 6" 2nd { 14" } diameter at bottom of pinion teeth { 1st 8.68" 2nd 16.73" }
 Propeller Shafts, diameter at bearings { 1st 14" main 18" } diameter at wheel shroud, { 1st 56" main 107.5" } Generator Shaft, diameter at bearings -
 Propelling Motor Shaft, diameter at bearings -

Intermediate Shafts, diameter as per rule 15.65" as fitted 15.750" Thrust Shaft, diameter at collars as per rule - as fitted 10" Tube Shaft, diameter as per rule - as fitted -
 Propeller Shaft, diameter as per rule 17.17" as fitted 17.875" Is the screw shaft fitted with a continuous liner { yes } Bronze Liners, thickness in way of bushes as per rule .826" as fitted 1"

Clearance between bushes as per rule .62" as fitted 1" 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 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 bearing appliance fitted at the after end of the tube shaft No Length of Bearing in Stern Bush next to and supporting propeller 5'-11 1/2" Propeller, diameter 19'-3" Pitch 14'-9" No. of Blades 4 State whether Moveable No Total Developed Surface 131 square feet.

Angle Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes Can the H.P. or I.P. Turbine exhaust direct to the sea Yes No. of Turbines fitted with astern wheels one Feed Pumps { No. and size One - 400 gpm Reciprocating, one - 200 gpm centrifugal, one 7200 gpm main circulator. How driven Two - M.D. and One Steam Dr. - One - 250 gpm vert. Motor Dr. }
 Main Bilge Line { No. and size One - 400 gpm Recip. 12"x8"x12" One - 200 gpm Centrifugal } Lubricating Oil Pumps, including Spare Pump, No. and size One - 250 gpm. Recip. 7 1/2"x9"x12" Are there 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 4 Main 5" 3 Aux. 4" See plan N° E. 4463-37-C-4 details

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", 1-5", 1-6" Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes - 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 Chests on Spool pieces 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 no

What pipes pass through the bunkers none How are they protected - Have they been tested as per rule -
 What pipes pass through the deep tanks none Have they been tested as per rule -
 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 no tunnel Is it fitted with a watertight door - worked from -

BOILERS, &c.— (Letter for record.....) Total Heating Surface of Boilers..... 8430 sq. ft. + 1374 sq. ft. + 1438 sq. ft.
 Is Forced Draft fitted..... Yes No. and Description of Boilers..... 2 Foster Wheeler - Cross Drum..... Working Pressure 525 p.s.i.
 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..... Yes..... Main Boilers..... Yes..... Auxiliary Boilers..... -..... Donkey Boilers..... -
 (If not state date of approval)

Superheaters..... No..... General Pumping Arrangements..... Yes..... Oil Fuel Burning Arrangements..... Yes
 Spare Gear. State the articles supplied:— Tailshaft with Liner AB-204 W.D.Y., 3.48. Propeller " 349, thrust pads (6 HP, 12LP, 2 rotor bearing brushes Hp & Lp, 2 ea. pinion bearing brushes, 1st & 2nd reduction, 2 main wheel bearing brushes, thrust pads (6), complete set of packing rings and springs for each size rotor glands, Large number of spares for boilers including 2 check valves, 24 tube plugs, 3 burners. Spare impellers or rotors with shaft and special fittings supplied for all pumps including main circulator. A large number of special fittings, studs, bolts and nuts. Quantities of steel bars, plates, pipes, and fittings of various sizes. ✓

The foregoing is a correct description,

Dates of Survey while building { ~~During erection on board vessel~~ } 27th July, 13, 17, 20, 25th August, 2, 3, 9, 10, 24, 25 September, 13, 21, 29 October, 2, 8, 9, 16, November, 1948
 Total No. of visits..... 18

Dates of Examination of principal parts— Casings..... 27th July..... Rotors..... -..... Blading..... -..... Gearing..... 2nd Sept. 27th July
 Wheel shaft..... 2nd Sept..... Thrust shaft..... -..... Intermediate shafts..... 9th Sept..... Tube shaft..... -..... Screw shaft..... 17 August
 Propeller..... 17th Aug..... Stern tube..... 13th August..... Engine and boiler seatings..... 24th Sept..... Engine holding down bolts..... 24 & 25th Sept
 Completion of pumping arrangements..... 21st October..... Boilers fixed..... 25 August..... Engines tried under steam..... 16th Nov.
 Main boiler safety valves adjusted..... 2nd Nov..... Thickness of adjusting washers..... -

Rotor shaft, Material and tensile strength OH Steel..... American Bureau of Shipping Standards..... Identification Mark AB 434 F.J.S.
 Flexible Pinion Shaft, Material and tensile strength..... -..... Identification Mark.....
 Pinion shaft, Material and tensile strength Ni. Steel - HP & LP = ES 24 G3 ASTM..... Identification Mark AG 212-129
 1st Reduction Wheel Shaft, Material and tensile strength Ni. Steel - HP & LP = ES 23 G3 ASTM..... Identification Mark A 431B FJS 8,4
 Wheel shaft, Material Steel OH Identification Mark AC-201-127..... Thrust shaft, Material..... Integral with Main Wheel Shaft. Identification Mark.....
 Intermediate shafts, Material Steel OH Identification Marks 85 V 07101..... 55 E 064B1..... Tube shaft, Material..... Identification Marks.....
 Screw shaft, Material Steel CH Identification Marks 1686-01..... Steam Pipes, Material Seamless Steel Test pressure 1000 p.s.i.

Date of test 28th October, 1948..... 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 Tanker..... If so, have the requirements of the Rules been complied with..... -

Is this 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.) The machinery of this vessel was built under special survey to the requirements of the American Bureau of Shipping in 1945. The dimensions in this report were taken from the approved plans and checked on the ship and found correct. All workmanship and material throughout is good. The turbine HP reduction from 6000 to 5500 was made by the Bethlehem Steel Corp. at Fall River, Massachusetts and is a modification of 6 H.P. controlled nozzles to 4 nozzles. The propelling machinery and all auxiliaries have been tested under full working conditions and the machinery is in good and safe working condition and the vessel appears worthy to be classed with this Society with the notation I.M.C. 11-48, fitted with oil fuel, F.P. above 150°F, 11-48, made in the Register Book.

The turbine and gears were intended for a Fairfield Victory ship which was canceled at the termination of the war in 1945.

Arranged			
The amount of Entry Fee	£ 500.00	:	When applied for,
Special	£	:	17-1-1949
Donkey Boiler Fee	£	:	When received,
Travelling Expenses (if any)	£ 54.00	:	19

C. H. Haman
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute..... NEW YORK JAN 19 1949
 Assigned L M C-11, 4 P.

Certificate (if required) to be sent to the Registrar of Shipping, London, E.C. 4, 15, Abchurch Lane. (The Surveyors are requested not to write on or below the space for Committee's Minute.)