

Report on Steam Turbine Machinery.

No. 9915

11 SEP 1953

Rpt. 4a.

Received at London Office

Date of writing Report 26 Dec., 1952 When handed in at Local Office 26th Dec., 52 Port of PHILADELPHIA, PA.
 No. in Survey held at Trenton, New Jersey Date, First Survey 18th Nov., Last Survey 22nd Dec., 1952
 Reg. Book " (Number of Visits six)
 on the Generator Turbines S.S. ANDROS HILLS S.B.Div. Tons (Gross Net)
 Built at Quincy, Mass. By whom built Bethlehem Steel Co. Yard No. 1632 When built 1953
 Turbines & Gears Trenton, N.J. By whom made De Laval Steam Turb. Co. Engine No. 650602 When made 1952
 Boilers made at By whom made Boiler No. When made
 Shaft Horse Power at Full Power Owners Orion Shipping Co. Port belonging to
 Nom. Horse Power as per Rule Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted Yes
 Trade for which Vessel is intended Carrying Petroleum in bulk

STEAM TURBINE ENGINES, &c.—Description of Engines 400 K.W. A.C. Turbo Generators (2 units per ship)
 No. of Turbines one Generator No. of primary pinions to each set of reduction gearing one
 direct coupled to Alternating Current Generator 3 phase 60 periods per second rated 400 Kilowatts 450 Volts at 1200 revolutions per minute;
 for supplying power for driving Ship's Auxiliaries

TURBINE BLADING.	H. P.	XXX	XXX	XXX
Impulse Blading	No. of rows	8 Rows - 7 Stages		
Reaction Blading	No. of stages			
	No. of rows in each stage			

Shaft Horse Power at each turbine H.P. - I.P. - L.P. - Revolutions per minute, at full power, of each Turbine Shaft XXX 5905 XXX reduction wheel 1200

Rotor Shaft diameter at journals H.P. 2.495 Pitch Circle Diameter 1st pinion 5.811 reduction wheel 28.593 Width of Face 1st reduction wheel 6-1/2"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 5-7/8" 2nd pinion XXX reduction wheel 6-3/16"

Flexible Pinion Shafts, diameter at bearings 1st - 2nd - Pinion Shafts, diameter at bearings External 1st 2-1/2" 2nd diameter at bottom of pinion teeth 5.573

Wheel Shafts, diameter at bearings 4.494 diameter at wheel shroud, 1st Generator Shaft, diameter at bearing 5.378" main Propelling Motor Shaft, diameter at bearings

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

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

Bronze Liners, thickness in way of bushes as per rule as fitted Thickness between bushes as per rule as fitted 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 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

Propeller, diameter Pitch No. of Blades State whether Moveable Total Developed Surface square feet

If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Can the H.P. or I.P. Turbines exhaust direct to the

Condenser 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

Ballast Pumps, No. and size Lubricating Oil Pumps, including Spare Pump, No. and size

Are two independent means arranged for circulating water through the Oil Cooler Suctions, connected both to Main Bilge Pumps and Auxiliary

Bilge Pumps, No. and size:—In Engine and Boiler Room In Pump Room

In Holds, &c. Main Water Circulating Pump Direct Bilge Suctions, No. and size 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

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

Are all Sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks

Are 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

Are 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

What pipes pass through the bunkers How are they protected

What pipes pass through the deep tanks 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

BOILERS, &c.—(Letter for record) Total Heating Surface of Boilers

Is Forced Draft fitted No. and Description of Boilers

Is a Report on Main Boilers now forwarded?

cc: New York Surveyors

011341-011351-0075

Lloyd's Register Foundation

Is { a Donkey Boiler fitted? } If so, is a report now forwarded?
an Auxiliary
Is the donkey boiler intended to be used for domestic purposes only?
Plans. Are approved plans forwarded herewith for Shafting Main Boilers Auxiliary Boilers Donkey Boilers
(If not, state date of approval)
Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements
Geared turbines Have torsional vibration characteristics of system been approved Date of approval
situated aft.

SPARE GEAR.

Has the spare gear required by the Rules been supplied?
State the principal additional spare gear supplied. As specified.

The foregoing is a correct description.

DE LAVAL STEAM TURBINE COMPANY
H. A. Bailey, Vice President

Manufacturers

Dates of Survey while building During progress of work in shops - - 18th and 20th November, 12th, 13th, 20 and 22nd December, 1952.
During erection on board vessel - - -
Total No. of visits

Dates of Examination of principal parts-Casings Rotors Blading Gearing
Wheel shaft Thrust shaft Intermediate shafts Tube shaft Screw shaft
Propeller Stern tube Engine and boiler seatings Engine holding down bolts
Completion of fitting sea connections 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 O.H.Steel 75,000 lbs. (Spec.DE1006) Identification Mark 28 C 371
Flexible Pinion Shaft, Material and tensile strength Identification Mark
Pinion shaft, Material and tensile strength O.H.Steel 105,000 lbs. (Steel CFM) Identification Mark KD 416 DJ
; Chemical analysis

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment
1st Reduction Wheel Shaft, Material and tensile strength Identification Mark
Wheel shaft, Material Identification Mark Thrust shaft, Material 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
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 Bethlehem, Quincy Hull No. 1630

General Remarks. (State quality of workmanship, opinions as to class, &c.) These turbo generators have been built under the
Special Survey of the Society's Surveyors in accordance with approved plans, New York letters and
otherwise in conformity with the Society's Rules.

The materials and workmanship are good and the tests required by the Rules have been carried out except when, under special circumstances, American Bureau of Shipping material tests have been accepted
The turbines have been examined and tested under working conditions in the shop coupled to their respective generators which also have been built under Special Survey (3S & 4S 46P316 J.M.G.), afterwards part opened out and found satisfactory.

These units will be forwarded to Bethlehem, Quincy Shipyard for installation in their Hull No.1632 and have been stamped for identification as follows:-

Serial 650602 Serial No. 650603
LLOYD'S LLOYD'S
No.2942 No.2943
12.12.52 22.12.52
D.J.A. D.J.A.

The amount of Entry Fee ... £ Inclusive: When applied for
Special ... £ fee: 19
to be
Donkey Boiler Fee ... £ charged: When received
later.
Travelling Expenses(if any) £: 19

Committee's Minute NEW YORK AUG 26 1953
Assigned See attached 1st entry Rpt.

Engineer Surveyor to Lloyd's Register of Shipping.