

Rpt. 4a.

Report on Steam Turbine Machinery. No. 4768

Date of writing Report 5, June 19 57 When handed in at Local Office 19 Port of Boston, Massachusetts Received at London Office 19 MAY 1958
 No. in Survey held at Fitchburg, Massachusetts Date, First Survey 14, Nov. 1956 Last Survey 22, Jan. 1957
 Reg. Book (Number of Visits 3)

on the Sparrows Point, Maryland Built at Bethlehem Steel Company Yard No. 4553 Tons (Gross 1957 Net 1956)
 Engines made at Fitchburg, Mass. By whom made General Electric Co. Turbine No. 126039 When built 1957
 Boilers made at By whom made Engine No. 126040 When made 1956
 Shaft Horse Power at Full Power Owners Gear No. 118119 When made 1956
 Nom. Horse Power as per Rule Is Refrigerating Machinery fitted for cargo purposes Port belonging to Is Electric Light fitted
 Trade for which Vessel is intended Is Electric Light fitted

STEAM TURBINE ENGINES, &c.—Description of Engines 500 KW Generating Units for Ships Auxiliary Power

No. of Turbines 2 ~~Direct coupled~~ single reduction geared to propelling shafts No. of primary pinions to each set of reduction gearing 1
~~Direct coupled~~ Alternating Current Generator 3 phase 60 periods per second 500 Kilowatts 450 Volts at 1200 revolutions per minute;
 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.

Impulse Blading { No. of rows Five (1 per stage)
 Reaction Blading { No. of stages "
 No. of rows in each stage "

Shaft Horse Power at each turbine H.P. 800 (625 KW - 5/4 Load) Revolutions per minute, at full power, of each Turbine Shaft H.P. 10,059 1st reduction wheel "
I.P. Gen.
L.P. main shaft 1200

Rotor Shaft diameter at journals H.P. 2-1/2" Pitch Circle Diameter { 1st pinion 3.4" 1st reduction wheel "
I.P. 2nd pinion main wheel 28.5" Width of Face { 1st reduction wheel "
L.P. 2nd pinion main wheel 6-1/2"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 6-5/8 & 5-5/8 1st reduction wheel "
 2nd pinion main wheel 6-1/2"

Flexible Pinion Shafts, diameter { 1st Pinion Shafts, diameter at bearings External 3" 2nd diameter at bottom of pinion teeth 1st 3.1718"
Internal 2nd "

Wheel Shafts, diameter at bearings { 1st Hub 4" 1st Generator Shaft, diameter at bearings 4" dia.
main 4" diameter at wheel Hub 4.1270 2nd Propelling Motor Shaft, diameter at bearings

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

Tube Shaft, diameter as per rule Screw Shaft, diameter as per rule Is the { tube } shaft fitted with a continuous liner { 24/3/58
as fitted as fitted screw

Bronze Liners, thickness in way of bushes as per rule Thickness between bushes as per rule Is the after end of the liner made watertight in the
as fitted as fitted

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. If so, state type.

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.

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. Is the Shaft Tunnel watertight. Is it fitted with a watertight door. worked from

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 }

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 situated aft. Have torsional vibration characteristics of system been approved Date of approval

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.

A. S. Sutton, Product Applications

Dates of Survey while building During progress of work in shops - - Nov. 14, 1956, Jan. 18 and 22, 1957
During erection on board vessel - -
Total No. of visits 3

Dates of Examination of principal parts—Casings Nov. 14, 1956 Jan. 18 & 22, 1957 Rotors Jan. 18 & 22, 1957 Blading Jan. 18 & 22, 1957 Gearing Jan. 22, 1957

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 Rad. 115,000 PSI 125,000 PSI Identification Mark No. 515

Flexible Pinion Shaft, Material and tensile strength O.H. Steel 164,900 PSI Identification Mark No. 515

Pinion ~~shaft~~ Material and tensile strength O.H. Steel 172,200 PSI Brin. 331-302 Identification Mark No. 515

Chemical analysis C. Mn. Ph. S. Si. Ni. Cr. Mo. .41 .78 .017 .024 .31 1.79 .82 .24

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 No. 515 22-1-57 Identification Mark

Wheel shaft, Material O.H. Steel Identification Mark No. 516 22-1-57

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 If so, state name of vessel

General Remarks. (State quality of workmanship, opinions as to class, &c.) These turbo generators have been built

the Special Survey of the Society's Surveyors in accordance with approved plans and otherwise

in conformity with the Society's Rules.

The workmanship and material are good throughout.

These units have been tested under steam, also run at overspeed with no appreciable

vibration in either turbo units, gears or generators. The overspeed and back pressure trip

were tested with satisfactory results.

These units will be forwarded to the Bethlehem Steel Company's Sparrows Point

Shipyard, Sparrows Point, Maryland for installation in their Hull No. 4553, and have been

marked for identification as follows:

Turbine Serial No. 126039 Turbine Serial No. 126040 Generator Nos.

LLOYD'S NO. 515 LLOYD'S NO. 516 8272895

22-1-57 22-1-57 8272893

T.B. T.B.

The amount of Entry Fee ... 400 : 00 : When applied for.

Special ... : : 5, June 1957

Donkey Boiler Fee ... : : When received.

Travelling Expenses (if any) 15 : 00 : 19

Committee's Minute NEW YORK APR 30 1958

Assigned See Bue. 11383

Engineer Surveyor to Lloyd's Register of Shipping

THOMAS BARRIE

Lloyd's Register Foundation