

12 JAN 1959

pt. 4a.

Report on Steam Turbine Machinery. No. 5

Date of writing Report 29/12 1958 When handed in at Local Office 2.1. 1959 Port of VALENCIENNES - NORD - FRANCE
 No. in Survey held at LILLE - NORD - FRANCE Date, First Survey 24.10.57 Last Survey 18.12. 1958
 Reg. Book NORWICH (Number of Visits 32)

on the ~~Single~~ ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw Vessel ESSO LONDON (Tanker) Tons (Gross 23,414) (Net)
 Built at Brest, France By whom built Arsenal de Brest for Dunkerque Yard No. 227 When built 1958
 Engines made at LILLE By whom made Société Fives-Lille-Cail Engine No. 1110-1111 When made 1956-1958
 Boilers made at - By whom made - Boiler No. - When made -
 Shaft Horse Power { Maximum 17,600 Owners Esso Petroleum Co Ltd, London Port belonging to -
 { Service 16,000
 M.N. as per Rule 3,500 Is Refrigerating Machinery fitted for cargo purposes - Is Electric Light fitted -
 Trade for which Vessel is intended Oil carrier (Tanker)

STEAM TURBINE ENGINES, &c.—Description of Engines C.E.M. Patent Impulse-reaction HP and LP Turbines
 No. of Turbines Ahead 2 LP Direct coupled, single reduction geared } to 1 propelling shafts. No. of primary pinions to each set of reduction gearing 2
 Astern 1 LP double reduction geared }
 direct 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. Ahead	I. P.	L. P. ahead	L. P. ASTERN.
Impulse Blading { No. of rows 2 (Velocity stage)				2 (Velocity stage)
Reaction Blading { No. of stages 23			22 - double-flow	6
{ No. of rows in each stage 1			1	1

Shaft Horse Power at each turbine { H.P. 8800 ✓ I.P. - L.P. 8800 } Revolutions per minute, at full power, of each Turbine Shaft { H.P. 4612 ✓ I.P. - L.P. 3098 }
 Rotor Shaft diameter at journals { H.P. 140mm I.P. - L.P. 280mm } Pitch Circle Diameter { 1st pinion HP: 299mm LP: 397mm 2nd pinion HP: 635mm LP: 701mm }
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 2 x 595 mm 1st reduction wheel 2 x 360mm }
 { 2nd pinion 2 x 935 mm main wheel 2 x 1070 mm }
 Flexible Pinion Shafts, diameter { 1st HP 190mm 2nd LP 190mm } Pinion Shafts, diameter at bearings { External HP: 180mm LP: 200mm Internal 1st 255 2nd 255 } diameter at bottom of pinion teeth
 Wheel Shafts, diameter at bearings { 1st 280mm 2nd 625mm } diameter at wheel shroud, { 1st 787mm 2nd 4340mm } Generator Shaft, diameter at bearings
 Intermediate Shafts, diameter as per rule as fitted Thrust Shaft, diameter at collars as per rule as fitted 600

Tube Shaft, diameter as per rule as fitted Screw Shaft, diameter as per rule as fitted Is the { tube } shaft fitted with a continuous liner { screw }
 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 If so, state type Length of Bearing in Stern Bush next to and supporting propeller
 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. Yes Can the H.P. or I.P. Turbines exhaust direct to the Condenser Yes No. of Turbines fitted with astern wheels 1 Feed Pumps { No. and size - How driven - }

Pumps connected to the Main Bilge Line { No. and size How driven } Lubricating Oil Pumps, including Spare Pump, No. and size Branch Bilge Suctions, No. and size:—In Engine and Boiler Rooms In Pump Room

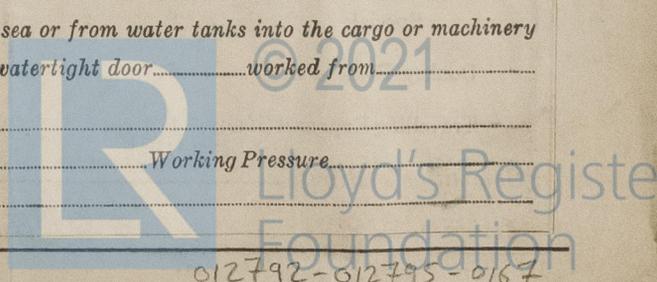
In Holds, &c. Main Water Circulating Pump Direct Bilge Suctions, No. and size Direct Bilge Suctions to the Engine and/or Boiler Room Bilges, No. and size Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes

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.—Total Heating Surface of Boilers Is Forced Draught fitted No. and Description of Boilers Working Pressure
 Is a Report on Main Boilers now forwarded ?

NOTE.—The words which do not apply should be deleted.



012792-012795-0167

Is ^{a Donkey} ~~an Auxiliary~~ Boiler fitted? - If so, is a report now forwarded? -
 Is the donkey boiler intended to be used for domestic purposes only -
 Plans. Are approved plans forwarded herewith for ^{gearing} ~~shafting~~ 12/9/56 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 Yes Date of approval 30th November, 1956

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes
 State the principal additional spare gear supplied 2574/57
362 Q

The foregoing is a correct description.



Dates of Survey while building: During progress of work in shops - - 24, 30/10/57 - 7/11/57 - 23/12/57 - 3, 7, 10/1/58 - 4, 17/3/ R. DESCHAMPS
 During erection on board vessel - - 28/4/58 - 23/6/58
 11/7/58 - 6, 7, 14, 21, 28/8/58 - 11/9/58 - 21, 29, 30/10/58 - 7, 14, 18, 25, 27, 28/11
 Total No. of visits 32

Dates of Examination of principal parts—Casings 24/10/57-3/10/57 Rotors 7/8/58-11/12 Blading 6/8/58-11/12 Gearing 24/4/58-23/6/
14/8/58 18/12/58 18/12/58 11/12/58

Wheel shaft 30/10/58 Thrust shaft 30/10/58 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 Electric steel HP 65.5 - LP 60.8 kg/mm² Identification Mark HP 1517 LP 1777

2nd Red Flexible Pinion Shaft, Material and tensile strength Electric steel HP 83.3 - LP 85.3 kg/mm² Identification Mark HP 2120 LP 2140

1st Red Pinion shaft, Material and tensile strength Electric steel HP 85.2 - LP 85.5 kg/mm² Identification Mark HP 2075 LP 2075

Pinions in special steel; Chemical analysis Ni Cr Mo Electric steels

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment 29/8/57 and 3/10/57

1st Reduction Wheel Shaft, Material and tensile strength Electric steel HP 94.5 - LP 80.5 kg/mm² Identification Mark HP 2049 LP 2048

Wheel shaft, Material O.H. Steel Identification Mark LYO-CF-64 Thrust shaft, Material O.H. Steel Identification Mark solid with wheel shaft LYO-CF-64

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 -

Full description of Fire Extinguishing Apparatus fitted in machinery spaces -

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 "ESSO-COLUMBIA"

General Remarks. (State quality of workmanship, opinions as to class, &c.)

The turbines and reduction gearing have been constructed in accordance with Rules Requirements, Approved Plans and Secretary's letters. The materials and workmanship are good and up to the standards required for the machinery of ships' classed with this Society

The amount of Entry Fee ... £ Frs : 566.400 When applied for
 Special ... £ : : 19
 Donkey Boiler Fee ... £ : : When received
 Travelling Expenses (if any) £ Frs : 77.365 19

Committee's Minute See Rpt. 1.
 Assigned



Certificate (if required) to be sent to (The Surveyors are requested not to write on or below the space for Committee's Minute.)

17.659

FRIDAY 21 AUG 1959