

Report on Steam Turbine Machinery. No. 81504

4a. Received at London Office **GLASGOW 18 AUG 1954**

Date of writing Report 9. 2. 1954 When handed in at Local Office 10. 2. 1954 Port of GLASGOW

Date, First Survey 2nd Sep. 1953 Last Survey 26th January 1954

in Survey held at Glasgow (Number of Visits 3)

Book on the S.S. WORLD HARMONY Tons Gross Net

built at NEWCASTLE By whom built VICKERS ARMSTRONG LTD Yard No. 135 When built 1954

engines made at GLASGOW By whom made YARROW CO. LTD. Engine No. 2036/11-12 When made 1954

boilers made at W. HARTLEPOOL By whom made RICHARDSONS WESTGARTH LTD Boiler No. 1954 When made 1954

shaft Horse Power at Full Power 13,750 MAX. Owners WORLD TANKERS CORPORATION Port belonging to PIREUS

nom. Horse Power as per Rule 2,750 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted YES

trade for which Vessel is intended CARRYING PETROLEUM IN BULK

STEAM TURBINE ENGINES, &c.—Description of Engines 2 - 500 KW. TURBO ALTERNATOR SETS.

No. of Turbines 1 Direct coupled, single reduction geared to propelling shafts. No. of primary pinions to each set of reduction gearing 1

double reduction geared

Direct coupled to Alternating Current Generator 3 phase 60 periods per second rated 500 Kilowatts 440 Volts at 1800 revolutions per minute; Direct Current Generator

Manufacturer supplying power for driving Propelling Motors, Type

rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

	H. P.	I. P.	L. P.	ASTERN.
No. of rows	<u>6</u>	<u>-</u>	<u>-</u>	<u>-</u>
No. of stages	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
No. of rows in each stage	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

shaft Horse Power at each turbine H.P. 500 KW (670 HP.) I.P. - L.P. - Revolutions per minute, at full power, of each Turbine Shaft H.P. 6000 1st reduction wheel I.P. - L.P. - main shaft 1800

Rotor Shaft diameter at journals H.P. 3" Pitch Circle Diameter 1st pinion 6.9787" 1st reduction wheel Width of Face 1st reduction wheel - main wheel 2 x 4" 2nd pinion - main wheel 23.3238"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 7 3/8" = 9 7/8" 1st reduction wheel - 2nd pinion - main wheel 9 1/2" x 8 1/2"

Flexible Pinion Shafts, diameter at bearings External 1st 3 1/2" 2nd - diameter at bottom of pinion teeth 1st - 2nd -

Wheel Shafts, diameter at bearings main 4 1/2" diameter at wheel shroud 1st - Generator Shaft, diameter at bearings 3 1/2" 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 shaft fitted with a continuous liner Is the after end of the liner made watertight in the propeller boss

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

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

Bilge Pumps, No. and size:—In Engine and Boiler Room In Pump Room Main Water Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room

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 the Overboard Discharges above or below the deep water

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Blow Off Cocks fitted with a spigot and brass line Are they each fitted with a Discharge Valve always accessible on the plating of the vessel How are they protected

What pipes pass through the bunkers Have they been tested as per rule What pipes pass through the deep tanks 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 Working Pressure

Is a Donkey Boiler fitted? an Auxiliary Boiler 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 Shafting Main Boilers Auxiliary Boilers Donkey Boilers

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

Gear 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? **Yes**

State the principal additional spare gear supplied.

The foregoing is a correct description.



Dates of Survey while building: During progress of work in shops - 1953 Sep 2, 16, 24, Dec 23, 24, 28 (1954) Jan 22, 26. During erection on board vessel - - - - - Total No. of visits - 8

Dates of Examination of principal parts: Casings - 31/4/53, 10/4/53, 14/4/53. Rotors - 4/8/53, 26/1/54. Blading - 4/8/53, 26/1/54. Gearing - 16/12/52, 26/1/54.

Wheel shaft - 26/1/54. 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: Steel 1% Ni 41/43 Tons/0" Identification Mark N° 11. 56758 N° 12. 52173

Flexible Pinion Shaft, Material and tensile strength: - - - - - Identification Mark - -

Pinion shaft, Material and tensile strength: Steel 44 Tons/0" Identification Mark N° 11. 56758 N° 12. 52173

; Chemical analysis: As per Rule reqts.

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: Steel Identification Mark N° 11. 57597 N° 12. 57625 Rim Identification Mark N° 11. 5775 N° 12. 5776

Wheel shaft, Material: Steel Identification Mark N° 11. 57597 N° 12. 57625 Material: Steel Identification Mark N° 11. 5775 N° 12. 5776

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: **Vickers Armstrong Ltd. N° 13**

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

The two geared turbine sets have been constructed under Special Survey in accordance with the Rules and approved plans, the materials and workmanship being found good. Each completed engine has been tested under full load condition for a period of 4 hours duration, governing, overspeed and trip tests were carried out and all found satisfactory. The turbines, gearing and all bearings were subsequently opened out and examined and so far as could be seen found satisfactory.

In my opinion the two turbine sets are eligible for installation in a classed vessel.

These two turbo alternator sets have been installed in SS WORLD HARMONY examined under full working conditions, governors tested and found to operate satisfactorily.

T. Morris

The amount of Entry Fee ... £ 42-0-0 When applied for 16 FEB 1954

Special ... £ : : When received

Donkey Boiler Fee ... £ : : When received

Travelling Expenses (if any) £ - : 5 - : 19

John Macleod
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute: Deferred for completion.

Assigned: Deferred for completion.

FRIDAY 22 OCT 1954

Lloyd's Register Foundation

Certificate (if required) to be sent to
9/12/54
The Surveyors are requested not to write on or below the space for Committee's Minute.