

# Report on Steam Turbine Machinery.

No. 111271

4a.

Date of writing Report

19

When handed in at Local Office

11-3-1954

Port of

NEWCASTLE-ON-TYNE

Received at London Office

2-APR 1954

Survey held at

Date, First Survey

14-9-51

Last Survey

29-3-1954

g. Book

on the

SS. "WORLD HARMONY"

Tons { Gross  
Net

built at NEWCASTLE-ON-TYNE

By whom built VICKERS ARMSTRONG LTD

Yard No. 135

When built 1953

engines made at WALLSEND

By whom made PARSONS MARINE SPM. TURB. CO. LTD

Engine No. 483

When made 1953

boilers made at HARTLEPOOL

By whom made RICHARDSONS WESTGARTH LTD

Boiler No.

When made

shaft Horse Power at Full Power 12500 @ 100 RPM

Owners WORLD TANKERS CORPORATION

Port belonging to PIREUS

nom. Horse Power as per Rule 2750 MN

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

trade for which Vessel is intended OPEN SEA SERVICE

STEAM TURBINE ENGINES, &c.—Description of Engines HP & L.P. TURBINES, DOUBLE REDUCTION GEARING.

No. of Turbines Ahead 2 Direct coupled, single reduction geared to ONE propelling shafts. No. of primary pinions to each set of reduction gearing 2

Direct coupled to Alternating Current Generator phase periods per second rated — Kilowatts Volts at revolutions per minute; Direct Current Generator

or supplying power for driving Propelling Motors, Type

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

TURBINE BLADING.	H. P.	I. P.	L. P.	ASTERN.
	15 STAGES	—	—	2 STAGES
	ONE ROTOR ROW EACH STAGE	—	—	2 CYL. 3 ROTOR EACH STAGE
Impulse Blading	No. of rows	—	19	—
Reaction Blading	No. of stages	—	3 ROWS IN 1 <sup>st</sup> STAGE	—
	No. of rows in each stage	—	1 ROW IN REMAINING STAGES	—

Shaft Horse Power at each turbine H.P. 7150 MAX. I.P. — Revolutions per minute, at full power, of each Turbine Shaft L.P. 6600 H.P. 4170 1st reduction wheel 774 I.P. — main shaft 103 max

Rotor Shaft diameter at journals H.P. 5" Pitch Circle Diameter 16.2825" 1st pinion 16.2825" 1st reduction wheel 65.7726" Width of Face 1st reduction wheel 27" H.P. 8" 2nd pinion 21.8519" main wheel 164.2748" main wheel 48"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 19.75" 1st reduction wheel 20" 2nd pinion 33" main wheel 37.5" HP 8 1/2" LP 10" 1st LP 16.1367" 2nd 21.0037"

Flexible Pinion Shafts, diameter 1st Pinion Shafts, diameter at bearings 11" 1st 60.75" Generator Shaft, diameter at bearings — 2nd 10 1/2" diameter at bottom of pinion teeth 1st LP 16.1367" 2nd 21.0037"

Wheel Shafts, diameter at bearings 1st 11" 1st 60.75" Generator Shaft, diameter at bearings — 2nd 10 1/2" diameter at bottom of pinion teeth 1st LP 16.1367" 2nd 21.0037"

Intermediate Shafts, diameter as per rule 19.42" 20" Thrust Shaft, diameter at collars as per rule 21.38" as fitted 21 1/4" 21" at coupling

Tube Shaft, diameter as per rule 21.25" as fitted 22 1/4" at cone Is the tube screw shaft fitted with a continuous liner 7/8" as fitted 21" at coupling

Bronze Liners, thickness in way of bushes as per rule 0.953" as fitted 1 1/16" Thickness between bushes as fitted 15/16" 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 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 No If so, state type Length of Bearing in Stern Bush next to and supporting propeller 7 1/8" Propeller, diameter 22' 0" Pitch 16.35 MEAN No. of Blades 4 State whether Moveable NO Total Developed Surface 210 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. Turbines exhaust direct to the Condenser YES No. of Turbines fitted with astern wheels ONE 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

Ballast Pumps, No. and size Are two independent means arranged for circulating water through the Oil Cooler Suctions, connected both to Main Bilge Pumps and Auxiliary In Pump Room

Bilge Pumps, No. and size In Engine and Boiler 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-bones 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 covering plate 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 8620 sq. ft. GEN. SURFACE + 1255 sq. ft. SUPERHEATER SURFACE PER BOILER Is Forced Draft fitted YES No. and Description of Boilers 2 TYPE D' FOSTER WHEELER WATER TUBE Working Pressure 850 LB/SQ. IN. SUPERHEATER S.V. LIFTS 875 LB/SQ. IN.

Is a Report on Main Boilers now forwarded?

004019-004028-0179



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 Shafting 16-5-51 Main Boilers. (If not, state date of approval)

GEARING. 27-8-51

Auxiliary Boilers

Donkey Boilers

Superheaters

General Pumping Arrangements

Oil Fuel Burning Arrangements

Geared turbines situated aft.

Have torsional vibration characteristics of system been approved. YES

Date of approval 27/8/51.

### SPARE GEAR.

Has the spare gear required by the Rules been supplied. YES

State the principal additional spare gear supplied. LIFTING GEAR FOR GEARING, CONDENSER DOORS, TURBO DIESEL ALTERNATOR

COND. TUBES, FERRULES, MAIN-AUXIL. CIRG. PUMP IMPELLERS - SPINDLES, EXTRACTION PUMP SHAFT - IMPELLER

MAIN-AUXIL. TURBO. FEED PUMP SHAFTS - IMPELLERS, etc.

The foregoing is a correct description.  
AND THE MACHINERY PARTICULARS ARE  
AS APPROVED FOR TORSIONAL VIBRATIONS.

FOR  
THE PARSONS MARINE STEAM TURBINE CO. LIMITED.

Andrew Walker

Manufacturer supplied

MANAGING DIRECTOR

Dates of Survey while building  
During progress of work in shops - (1951) Jan 14, 21, 28, Nov 6, 9, 16, 20, Dec 14 (1952) Jan 14, 28, 29, Feb 9, 29, Mar 7, 11, 14, 18, 21, Apr 8, 15, 22, May 26, 29, 31, 30, 31  
During erection on board vessel - (1951) Jan 14, 21, 28, Feb 4, 11, 15, Aug 7, 8, Sep 8, 18, 16, 19, 21, 24, 30, Oct 3, 7, 10, 14, 16, 21, 28, 30, 31, Nov 4, 7, 11, 14, 18, 21, 25, 28, Dec 5, 9, 12, 20, (1952) Jan 8, 9, 12, 15, 20, 22, 27, 30, Feb 3, 4, 6, 11, 17, 18, 20, 21, 27, Mar 9, 5, 6, 10, 11, 12, 17, 20, 24, 31, Apr 1, 10, 14, 15, 18, 22, Jun 9, 12, 16, Jul 3, 7, 17, Aug 31, 25, 28, Sep 11, 25, Oct 2, 9, 16, 20, 23, 29, Nov 3, 10, 17, 27, Dec 1, 4, 11, 15, 19, 22, 25, 28, Feb 8, 11, 18, Mar 1, 2, 24, 5, 11, 26, 29, 30, 31

Dates of Examination of principal parts - Casings 10. 11. 53 10. 11. 53 159 3. 11. 53  
Wheel shaft 11. 12. 53 Thrust shaft - Intermediate shafts 16. 10. 52 Tube shaft - Screw shaft 24. 9. 53

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 LP. FORGED STEEL. 41 TONS. HP. 38-41 TONS. Identification Mark HP. 47766 C.D.

Flexible Pinion Shaft, Material and tensile strength FORGED STEEL. 33 TONS. Identification Mark LP. 14356 C.D.

Pinion shaft, Material and tensile strength HP. LP. 59-60 TONS/2" Identification Mark 18933 C.D.

; Chemical analysis 2 1/2 % Ni. - CR. - Mo. Identification Mark HP. 18994 C.D.

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment 25/6/52.

1st Reduction Wheel Shaft, Material and tensile strength FORGED STEEL. 35 TON. Identification Mark 18992, 18993

Wheel shaft, Material FORGED STEEL Identification Mark 18988 C.D. Thrust shaft, Material FORGED STEEL Identification Mark 19014 C.D.

Intermediate shafts, Material DITTO Identification Marks 45 687 19017 Tube shaft, Material - Identification Marks -

Screw shaft, Material 19021 19023 C.D. Identification Marks 4 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 ENG. 480. V.A. HULL 132.

General Remarks. (State quality of workmanship, opinions as to class, &c.) The main turbines and gearing and fabricated

gear case of this vessel have been constructed under Special Survey in accordance with approved plans and the requirements of the Rules or their equivalent, to our satisfaction.

On completion the machinery was operated on the test bed under "NO LOAD" conditions, and the over-speed governors operated.

The materials and workmanship are good.

The fabricated gear case should be specially examined on completion of full power

trials. The continuous operation of the machinery should be 'barred' between

50 & 59 RPM. as per harbor letter 27/8/51. The machinery has now been despatched

to Vickers Armstrong Naval Yard for installation in their Hull No 135.

It is recommended for the favourable consideration of the Committee that this machinery

is eligible, in our opinion, to be classed + LMC, when installed in the vessel and

tested as required by the Rules.

The amount of Entry Fee ... £ 180 : 16 : When applied for.

WELDED GEAR CASE. Special (40 TONS) ... £ 11 : 5 : 1 APR 1954

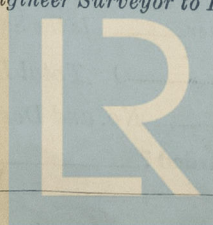
Donkey Boiler Fee ... £ : : When received.

Travelling Expenses (if any) £ : : FRIDAY 22 OCT 1954

Committee's Minute Assigned Sun Rpt. 48.

Leo. McLaughlin & J.O. White.

Engineer Surveyor to Lloyd's Register of Shipping.



Lloyd's Register of Shipping Foundation