

REPORT ON STEAM TURBINE MACHINERY.

No. 84968

Received at London Office 21 NOV. 1929

Date of writing Report 19 When handed in at Local Office 10.9.29 Port of Newcastle-on-Tyne.
 No. in Survey held at Walker Date, First Survey 3rd June Last Survey 4th Sept. 1929
 Reg. Book. on the low pressure turbine for the S.S. "GORJISTAN" (Number of Visits 8)
 Tons } Gross 5888
 Net 3710
 Built at Smith Shields By whom built J. Readhead & Co., Ltd. Yard No. 498. When built 1929.
 TURBINES Engines made at Walker By whom made Swan Hunter, W.R. & Co. Engine No. 1342 When made 1929.
 Boilers made at Smith Shields By whom made J. Readhead & Co., Ltd. Boiler No. 498 When made 1929.
 Shaft Horse Power at Full Power Owners Port belonging to
 Nom. Horse Power as per Rule 228 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes.
 Trade for which Vessel is intended General Cargo.

TEAM TURBINE ENGINES, &c.—Description of Engines One Bauer-Wash Turbine.

No. of Turbines Ahead One Direct coupled, single reduction geared } to One propelling shafts. No. of primary pinions to each set of reduction gearing One.
 Astern - double reduction geared

Direct coupled to { Alternating Current Generator - phase - periods per second }
 Direct Current Generator } rated - Kilowatts - Volts at - 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 LADING.	H.P.			I.P.			L.P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION							98 7/8"	1046 1/2"	6			
2ND							119 "	1088 "	"			
3RD							140 "	1188 "	"			
4TH							161 "	1142 "	"			
5TH							191 "	1232 "	"			
6TH							220 "	1290 "	"			
7TH												
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine { H.P. : }
 I.P. : } Revolutions per minute, at full power, of each Turbine Shaft { H.P. : } 1st reduction wheel 420.
 L.P. 1340 } I.P. : } main shaft 80.
 L.P. 2945 }

Rotor Shaft diameter at journals { H.P. : }
 I.P. : } Pitch Circle Diameter { 1st pinion 256.21" 1st reduction wheel 1808.14" width of 1st reduction wheel 290 1/2".
 L.P. 140 1/2" } 2nd pinion 461.69" main wheel 2729.4" Face { main wheel 660 1/2".

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 295.1340" 1st reduction wheel 415 1/2" + 195.5 1/2".
 2nd pinion 605 1/2" main wheel 590 1/2".

Pinion Shafts, diameter at bearings External 1st 140 1/2" 2nd 420 1/2"
 Internal 1st 140 1/2" 2nd 355" diameter at bottom of pinion teeth { 1st 240.59 1/2".
 2nd 446.96"

Wheel Shafts, diameter at bearings { 1st 300 1/2".
 main 560" } diameter at wheel shroud, { 1st 1438 1/2". Generator Shaft, diameter at bearings -
 main 2234" Propelling Motor Shaft, diameter at bearings -

Intermediate Shafts, diameter as per rule - Thrust Shaft, diameter at collars as per rule 15.31"
 as fitted - 394 1/2". Tube Shaft, diameter as per rule -
 as fitted -

Propeller Shaft, diameter as per rule - Is the { tube } shaft fitted with a continuous liner {
 as fitted - } screw } Bronze Liners, thickness in way of bushes as per rule -
 as fitted - }

Thickness between bushes as per rule - 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.
 of Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Can the H.P. or I.P. Turbine 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 to both Main Bilge Pumps and Auxiliary 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

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 stowhold plates Are the Overboard Discharges above or below the deep water line

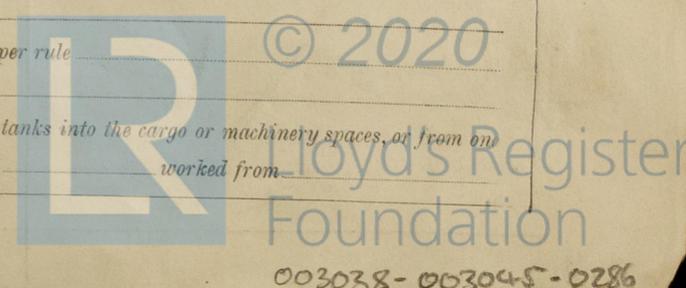
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate

That pipes pass through the bunkers How are they protected
 That 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

Please see Newcastle Report of 10.9.29 attached.



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 }

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 _____

Spare Gear. State the articles supplied:—

Please Report

For SWAN, HUNTER & WIGHAM RICHARDSON, LTD

R. W. Wintour Manufacturer.
 SECRETARY

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops -- } *1929 June 3. 5. July 23. 25. Aug. 15. 19. 27. Sep. 4.*
 { During erection on board vessel --- }
 Total No. of visits *8.*

Dates of Examination of principal parts—Casings *23. 4. 29.* Rotors *23. 4. 29.* Blading *23. 4. 29.* Gearing *23. 4. 29.*

Wheel shaft *23. 4. 29.* Thrust shaft *23. 4. 29.* Intermediate shafts - Tube shaft - Screw shaft -

Propeller - Stern tube - Engine and boiler seatings - Engine holding down bolts -

Completion of pumping arrangements - Boilers fired - Engines tried under steam -

Main boiler safety valves adjusted - Thickness of adjusting washers -

Rotor shaft, Material and tensile strength	<i>Steel</i>	(Please see attached forging certificate.)	Identification Mark	<i>LLOYD'S M.R. 23. 4. 29.</i>			
Pinion Shaft , Material and tensile strength	<i>Steel</i>		Identification Mark	<i>do</i>			
1st Red Pinion shaft, Material and tensile strength	<i>Steel</i>		Identification Mark	<i>do</i>			
2nd Red Pinion Shaft, Material and tensile strength	<i>Steel</i>		Identification Mark	<i>do</i>			
1st Wheel shaft, Material	<i>Steel</i>	Identification Mark	<i>23. 4. 29.</i>	Thrust shaft, Material	<i>Steel</i>	Identification Mark	<i>do</i>
2nd Wheel Intermediate shafts, Material	<i>Steel</i>	Identification Marks	<i>do</i>	Tube shaft, Material	-	Identification Marks	-
3rd Wheel Steam Pipes, Material	<i>Steel</i>	Identification Marks	<i>do</i>	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 carrying and burning oil fuel been complied with _____

Is this machinery a duplicate of a previous case *yes* If so, state name of vessel *"Arabistan"*

General Remarks (State quality of workmanship, opinions as to class, &c. *The Machinery has been built under special survey in accordance with the approved plans & the Rules of the Society. The workmanship & materials are of good quality throughout. The valves will be fitted on board the vessel at Messrs Readhead & Co. yard to which they have now been forwarded*

The amount of Entry Fee ... £	:	:	When applied for,
Special ... £ <i>22 : 10</i>	:	:	<i>4. 11. 19 29</i>
Donkey Boiler Fee ... £	:	:	When received,
Travelling Expenses (if any) £	:	:	<i>8. 11. 19 29</i>

Thos. A. Ferguson
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE. 26 NOV 1929* *TUE. 17 DEC 1929*

Assigned *All P.B. rpt. attached*

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

