

REPORT ON STEAM TURBINE MACHINERY.

Received at London Office. MON. 20 NOV 1922

Date of writing Report 19 When handed in at Local Office 17.11.22 Port of NEWCASTLE-ON-TYNE.
 No. in Survey held at Larum Date, First Survey 15 Aug 1921 Last Survey 16 Nov. 1922
 Reg. Book. 55284 on the Steel Co. BRITISH OFFICER (Number of Visits 112) Gross 74.00 Tons Net

Built at Newcastle By whom built Palmers' Co. Ltd. Yard No. 934 When built 1922
 Engines made at Newcastle By whom made Palmers' Co. Ltd. Engine No. 934 When made 1922
 Boilers made at Newcastle By whom made Palmers' Co. Ltd. Boiler No. 934 When made 1922
 Shaft Horse Power at Full Power 3200 Owners British Tanker Co. Ltd. Port belonging to London
 Nom. Horse Power as per Rule 654 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

STEAM TURBINE ENGINES, &c.—Description of Engines 2 Steam Turbines geared K/S. No. of Turbines 2 Ahead 2 Astern 2
 Direct coupled, single or double reduction geared to one propelling shaft. No. of primary pinions to each set of reduction gearing 2, direct coupled to phase
 periods per second, Alternating Current Generator rated Kilowatts Volts at revolutions per minute; for supplying power for driving
 Propelling Motors. Propelling Motors, Type
 rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

PARTICULARS OF TURBINE BLADING.

	H.P.			H.P. ASTERN			L.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	1 1/16"	28 3/4"	6	1 1/16"	29 1/4"	6	2"	30"	4	1 1/16"	41 1/8"	1
2ND	1 1/4"	18 1/2"	6	1 1/16"	29 1/4"	6	2 3/8"	31 1/4"	4	1 1/16"	41 1/8"	1
3RD	1 1/16"	19 1/8"	5				2 3/8"	32 3/4"	4	1 1/16"	33"	1
4TH	2"	20"	5				2 3/8"	42 3/4"	2	1 1/16"	34"	1
5TH	2 3/16"	21 1/8"	5				3 1/8"	44 1/4"	2	2 1/2"	35 1/2"	1
6TH							4 3/8"	45 1/4"	1	2 1/2"	35 1/2"	1
7TH							5 1/4"	46 3/4"	1	2 1/2"	35 1/2"	1
8TH								48 1/2"	1			

Shaft Horse Power at each turbine 3200 Revolutions per minute, at full power, of each Turbine Shaft 3556 1st reduction wheel 59.66 main wheel 122.879
 main shaft 73 Pitch Circle Diameter, 1st pinion 7.006" 2nd pinion 14.8" 1st reduction wheel 59.66 main wheel 122.879
 Width of Face, 1st reduction wheel 15" main wheel 37 3/4" Distance between centres of pinion and wheel faces and the centre of the adjacent bearings,
 1st pinion 14 1/8" 2nd pinion 37 3/4" 1st reduction wheel 37 3/4" main wheel 44 1/8" Flexible Pinion Shafts, diameter 1st 5" 2nd 5"
 Pinion Shafts, diameter at bearings External 1st 12" 2nd 12" diameter at bottom of teeth of pinion 1st 14.635" 2nd 19.268"
 Wheel Shafts, diameter at bearings, 1st 12" main 17" diameter at wheel shroud, 1st 56 bone main 118 1/4" bone
 Generator Shafts, diameter at bearings Propelling Motor Shafts, diameter at bearings

Main Shafting, diameter of Tunnel Shafting as per rule 14.1" as fitted 17" diameter of Thrust Shafting as per rule 14.8" as fitted 17"
 diameter of Screw Shaft as per rule 16.55" as fitted 17 1/2" Is the screw shaft fitted with a continuous liner the whole length of the stern tube No. 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 joints burned 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 appliance fitted at the after end of the shaft to permit of it being efficiently
 lubricated Vickers Gland Length of Stern Bush 6'-0" Diameter of Propeller 19'-1 1/2"

Pitch of Propeller 18'-4 1/2" No. of Blades 4 Slide whether Moveable Yes Total Surface 104.4 square feet. If Single Screw, are
 arrangements made so that steam can be led direct to the L.P. Turbine, and with the H.P. or L.P. Turbine can exhaust direct to the Condenser Yes

No. of Turbines fitted with astern wheels 2 Total number of power driven Main and Auxiliary Pumps 5

No. and size of Feed Pumps 1 Main 10 1/2" x 8" x 21" How driven Electric Motor No. and size of Pumps connected to the Main Bilge Line 2-7' x 12"

How driven main shaft No. and size of Ballast Pumps 1-9' x 11" x 10" No. and size of Lubricating Oil Pumps, including

Spare Pump 2-10' x 8" x 15" Are two independent means arranged for circulating water through the Oil Cooler Yes No. and size of suction

connected to both Main Bilge Pumps and Auxiliary Bilge Pumps;—In Engine and Boiler Room 3-3 1/2" and in Holds, &c. None

No. and size of Main Water Circulating Pump Bilge Suctions 1-11" No. and size of Donkey Pump Direct Suctions

to the Engine Room Bilges 1-6" Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes Yes

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 Yes

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks both

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Discharge Pipes above or below the deep water line atm

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

What pipes are carried through the bunkers None How are they protected Yes

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

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 Yes Is the Screw Shaft Tunnel watertight None Is it fitted with a watertight door Yes worked from Yes

BOILERS, &c.—(Letter for record 3) Total Heating Surface of Boilers 8511 sq ft

Is Forced Draft fitted Yes No. and Description of Boilers 3 S.E. Cyl. Multi

Working Pressure 200 lbs

Is a Report on Main Boilers now forwarded? *Yes*

Is a Donkey Boiler fitted? *Yes*

If so, is a report now forwarded? *Yes*

Plans. Are approved plans forwarded herewith for Shafting
(If not state date of approval)

Main Boilers

Auxiliary Boilers

Donkey Boilers

Spare Gear. State the articles supplied:— *In accordance with the rules & in addition 1st Pinion, 1st Pinion, 10% tubes for oil coolers, 24 Condenser tubes, 2 C.S. propeller blades, 1 Sail Shaft.*

The foregoing is a correct description,
Wm. J. M. & Co., Ltd.

General Manager, Engine Works.

Manufacturer.

Dates of Survey while building
During progress of work in shops -- 1921. Aug. 15, 31, Sept. 15, 21, 22, 30, Oct. 5, 7, 19, 21, 24, 26, 28, Nov. 2, 3, 9, 11, 15, 16, 18, 21, 22, 25, 29, 30, Dec. 2, 5, 8, 14, 16, 19, 20, 29, Jan. 5, 6, 20, 25, 30, 31, Feb. 3, 6, 7, 13, 15, 17, 20, 21, 23, 27, Mar. 6, 8, 9, 13, 14, 16, 17, 21, 22, 28, Apr. 5, 6, 20, 24, 25, May 4, 10, 16, 26, 31, June 2, 6, 30, July 3, 5, 10, 17, 21, Aug. 2, 4, 7, 10, 21, 22, 24, 25, Sept. 4, 12, 13, 18, 20, 25, 26, 27, 28, Oct. 2, 4, 6, 7, 11, 13, 16, 17, 18, 20, 21, 25, 27, Nov. 2, 7, 16, Dec. 1, 7, 16.
During erection on board vessel --
Total No. of visits *112.*

Dates of Examination of principal parts—Casings *16-3-22* Rotors *25-8-22* Blading *28-3-22* Gearing *17.10.22*

Wheel shaft *27-9-22* Thrust shaft *20.2.22* Tunnel shafts *20.2.22* Screw shaft *20.2.22* Propeller *6.2.22*

Stern tube *20.2.22* Engine and boiler seatings *9.3.22* Engines holding down bolts *6.10.22*

Completion of pumping arrangements *7.11.22* Boilers fixed *6.10.22* Engines tried under steam *7.11.22*

Main boiler safety valves adjusted *7.11.22* Thickness of adjusting washers *FORWARD BLR. P. 1/32 S. 3/16 SUPER 3/8 STAG BLR. P. 1/32 S. 3/16 SUPER 3/16*

Material and tensile strength of Rotor shaft *S.M. STEEL 34.6/36.5 5"* Identification Mark on Do. *5973N*

Material and tensile strength of Flexible Pinion Shaft *S.M. STEEL 28/32 5"* Identification Mark on Do. *5973N*

Material and tensile strength of Pinion shaft *NICKEL STEEL 42.8/45.6 5"* Identification Mark on Do. *W.9.H.*

Material and tensile strength of 1st Reduction Wheel Shaft *S.M. STEEL 28/32 5"* Identification Mark on Do. *5973N*

Material of Wheel shaft *S.M. STEEL* Identification Mark on Do. *5973N* Material of Thrust shaft *S.M. STEEL* Identification Mark on Do. *5966N*

Material of Tunnel shafts *S.M. STEEL* Identification Marks on Do. *5966N* Material of Screw shafts *S.M. STEEL* Identification Marks on Do. *5966N*

Material of Steam Pipes *S.D. Steel* Test pressure *600 lbs.* Date of test *5.18.10.22*

Is an installation fitted for burning oil fuel? *Yes* Is the flash point of the oil to be used over 150°F. *Yes*

Have the requirements of the Rules for carrying and burning oil fuel been complied with? *Yes*

Is this machinery a duplicate of a previous case? *Yes* If so, state name of vessel *"British General"*

The main feed pump, main circulating pump & fan are electrically driven

General Remarks (State quality of workmanship, opinions as to class, etc.) *The machinery of this vessel has been built*

under special survey. The materials and workmanship are found good. It has been efficiently

installed & tried out under steam with satisfactory results. In my opinion this machinery

is eligible for record + L.M.C. 11.22 M.B. pressure 200 lbs. A.B. pressure 120 lbs. Fitted for oil fuel

F.P. above 150°F. in the Register Book. — It is submitted that

this vessel is eligible for

THE RECORD. + L.M.C. 11.22. F.D. O.G.

25 Steam Turbines geared to one Screw shaft.

"Fitted for Oil Fuel" 11.22. F.P. above 150°F.

22/11/22

R. Lee Amess

Engineer Surveyor to Lloyd's Register of Shipping.

The amount of Entry Fee ... £ *6* : —

Special ... £ *107* : *14*

Donkey Boiler Fee ... £ :

Travelling Expenses (if any) £ :

Committee's Minute *FRI. NOV. 24 1922*

Assigned *+ L.M.C. 11.22*

F.D. O.G.

Fitted for oil fuel 11.22

F.P. above 150°F.



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