

Rpt. 4a.

No. 76277

REPORT ON STEAM TURBINE MACHINERY.

Received at London Office
Date of writing Report 21/12/22 When handed in at Local Office Port of Newcastle-on-Tyne
No. in Survey held at Janow Date, First Survey 22 March 1921 Last Survey 20 December 1922
Reg. Book. (Number of Visits 169)
55286 on the STEEL S.S. BRITISH PREMIER

Gross 6046
Net 3517
Tons
Built at Newcastle By whom built Palmers S.B. & J. Co. Yard No. 925 When built 1922
Engines made at Newcastle By whom made Palmers S.B. & J. Co. Engine No. 925 When made 1922
Boilers made at Newcastle By whom made Palmers S.B. & J. Co. Boiler No. 925 When made 1922
Shaft Horse Power at Full Power 2890 Owners British Tanker Co. Ltd. Port belonging to London
Nom. Horse Power as per Rule 593 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes

H.P. reaction and impulse
STEAM TURBINE ENGINES, &c.—Description of Engines H.P. reaction with double reduction No. of Turbines Ahead 2
Aster 2
Direct coupled, single or double reduction geared to one propelling shaft. No. of primary pinions to each set of reduction gearing 1, 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.			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	13 1/16; 1 3/16; 1 3/16	28 3/4; 8 29 3/4	16 L. 2 ROTOR	13 1/16; 1 3/16; 1 3/16	29 3/8; 30	16 L. 2 ROTOR	2"	30"	4	13 1/16; 2 3/16; 2 3/16	41 3/8; 4 43"	15 L. 2 ROTOR
2ND REACTION	15"	17 7/8"	6	15"	17 7/8"	6	2 3/8"	31 1/4"	4	15"	33"	1
3RD	1 1/4"	18 1/2"	6				3 3/8"	32 3/4"	4	1 3/4"	34"	1
4TH	1 3/8"	19 1/8"	5				2 3/8"	42 3/4"	2	2 1/2"	35 1/2"	1
5TH	2"	20"	5				3 3/8"	44 1/4"	2	2 1/2"	35 1/2"	1
6TH	2 3/16"	21 1/8"	5				3 3/8"	45 1/4"	1	2 1/2"	35 1/2"	1
7TH							4 3/8"	46 3/4"	1			
8TH							5 1/4"	48 1/2"	1			
							6 3/8"	50 3/4"	1			

Shaft Horse Power at each turbine 1425.5 Revolutions per minute, at full power, of each Turbine Shaft H.P. 3768 L.P. 2538 1st reduction wheel 442
main shaft 74 Pitch Circle Diameter, 1st pinion H.P. 7.006" L.P. 10.4" 2nd pinion 19.2" 1st reduction wheel 59.66" main wheel 114.86"
Width of Face, 1st reduction wheel 15" main wheel 35 1/2" Distance between centres of pinion and wheel faces and the centre of the adjacent bearings,
1st pinion 28 3/4" 2nd pinion 72 1/8" 1st reduction wheel main wheel 80 3/8" Flexible Pinion Shafts, diameter 1st 2nd
Pinion Shafts, diameter at bearings 1st 4 3/8" 2nd 12" diameter at bottom of teeth of pinion 1st H.P. 6.53" 2nd 18.43"
Wheel Shafts, diameter at bearings, 1st 12" main 16 1/2" diameter at wheel shroud, 1st 56" base main 110 1/4"
Generator Shafts, diameter at bearings Propelling Motor Shafts, diameter at bearings
Main Shafting, diameter of Tunnel Shafting as per rule 13.57" as fitted 16 1/2" diameter of Thrust Shafting as per rule 14.25" as fitted 17"
diameter of Screw Shaft as per rule 16.22" as fitted 17" 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 a short brass liner is fitted in way of rollers' flange 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 flange outside stern tube Length of Stern Bush 6'-0" Diameter of Propeller 18'-7 1/2"

Pitch of Propeller 17'-10 1/2" No. of Blades 4 State whether Moveable Yes Total Surface 98 sq. feet. If Single Screw, are
arrangements made so that steam can be led direct to the L.P. Turbine, and either the H.P. or L.P. Turbine can exhaust direct to the Condenser Yes

No. of Turbines fitted with astern wheels Two Total number of power driven Main and Auxiliary Pumps 5
No. and size of Feed Pumps 1 Rotary 10 1/2" x 8" x 21" How driven Electric Steam Cylinders No. and size of Pumps connected to the Main Bilge Line 3-7" 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 one 11" No. and size of Donkey Pump Direct Suctions
to the Engine Room Bilges one 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 above
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
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 worked from

BOILERS, &c.—(Letter for record S) Total Heating Surface of Boilers 7737 sq. ft.
Is Forced Draft fitted Yes No. and Description of Boilers 3 S.E. Cyl. mult.

Working Pressure 200 lbs.

W351-0046

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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 *No*
(If not state date of approval)

Main Boilers *Yes*

Auxiliary Boilers

Donkey Boilers *Yes*

Spare Gear. State the articles supplied:— *In accordance with the rules and in addition 1 H.P. pinion, 1 L.P. pinion, 10% tube*

for oil cooler, 24 Condenser tubes, 2 C.I. propeller blades, 1 Screw Shaft

The foregoing is a correct description,

For

Palmers Shipbuilding & Iron Co., Ltd.

Manufacturer.

General Manager, Engine Works.

Dates of Survey while building
During progress of work in shops -- *1921 Mar. 22, 23, 24, 31, Apr. 7, 12, 13, 15, 16, 21, 25, 26, 28, May 3, 4, 25, 27, 31, June 3, 7, 8, 9, 17, 30, July 26, 28, Aug. 4, 8, 11, 15, 17, 19, 23, 26, 30, 31, Sep. 7, 11, 12, 15, 22, 30, Oct. 5, 19, 21, 24, 26, 28, Nov. 2, 11, 15, 22, 30, Dec. 1, 2, 5, 8, 12, 14, 16, 20, 29, Jan. 5, 9, 13, 19, 20, 24, 30, 31, Feb. 3, 8, 10, 13, 21, 27, Mar. 3, 8, 9, 13, 16, 17, 22, 27, 28, Apr. 3, 4, 5, 6, 7, 10, 13, 19, 20, 24, 29, May 4, 10, 11, 12, 15, 16, 26, 30, 31, June 1, 2, 6, 12, 25, July 6, 10, 12, 17, 18, 19, 21, 27, Aug. 4, 9, 11, 14, 15, 17, 21, 24, 18, 21, 22, 25, Oct. 9, 13, 16, 18, 20, 21, 25, 27, 30, Nov. 1, 2, 3, 6, 7, 8, 9, 10, 13, 15, 17, 20, 21, 22, 24, 27, 29, 30, Dec. 1, 4, 5, 7, 13, 15, 20.*
During erection on board vessel --
Total No. of visits *169.*

Dates of Examination of principal parts—Casings *16-3-22* Rotors *18-10-22* Blading *21-8-22* Gearing *18-10-22*

Wheel shaft *18-10-22* Thrust shaft *20-7-22* Tunnel shafts *20-7-22* Screw shaft *20-7-22* Propeller *6-7-22*

Stern tube *16-5-22* Engine and boiler seatings *12-6-22* Engines holding down bolts *15-11-22*

Completion of pumping arrangements *15-12-22* Boilers fixed *27-11-22* Engines tried under steam *13-12-22*

Main boiler safety valves adjusted *13-12-22* Thickness of adjusting washers *STAR BOILER P²/₆₄ S³/₃₂ SPTR. ²/₆₄ PORT BOILER P³/₈ S¹¹/₃₂ SPTR. ¹⁹/₆₄*

Material and tensile strength of Rotor shaft *S.M. STEEL 34²/₃₆₅ IN* Identification Mark on Do. *5971 N.*

Material and tensile strength of Flexible Pinion Shaft *S.M. STEEL 28²/₃₂ IN* Identification Mark on Do. *5971 N.*

Material and tensile strength of Pinion shaft *NICKEL STEEL 40⁴/₄₅ IN* Identification Mark on Do. *4079 D. 3968 D. 1094 P.M.G.*

Material and tensile strength of 1st Reduction Wheel Shaft *S.M. STEEL 28²/₃₂ IN* Identification Mark on Do. *5971 N.*

Material of Wheel shaft *S.M. STEEL* Identification Mark on Do. *5971 N.* Material of Thrust shaft *S.M. STEEL* Identification Mark on Do. *6008 N.*

Material of Tunnel shafts *S.M. STEEL* Identification Marks on Do. *6008 N.* Material of Screw shafts *S.M. STEEL* Identification Marks on Do. *6008 N.*

Material of Steam Pipes *SOLID DRAWN STEEL* Test pressure *600* *400 LBS.* Date of test *21.10.22 To 7.12.22*

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 SERGEANT" No. 931*

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 sound and good. The machinery has been efficiently installed in the vessel and tried out under working conditions with satisfactory results. The safety valves of the main and Donkey Boilers have been adjusted under steam to their respective working pressures. In my opinion the machinery of this vessel is now eligible for record in the Society's Register Book.*

+ L.M.C. 12.22 FITTED FOR OIL FUEL F.P. ABOVE 150°F. 12.22 TAIL SHAFT O.G. PRESSURES MAIN BOILERS 200 LBS.

DONKEY BOILER 120 LBS.

The amount of Entry Fee ... £ *6* : —

Special ... £ *104* : *13*

Donkey Boiler Fee ... £ : :

Travelling Expenses (if any) £ : :

Committee's Minute *FRI. 29 DEC. 1922*

Assigned *+ L.M.C. 12.22*

F. D. O. S.

Tested for oil fuel 12.22

F.P. above 150°F.



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