

REPORT ON STEAM TURBINE MACHINERY.

Received at London Office 27 JUN 1930

Date of writing Report 22nd June 1930 When handed in at Local Office 1930 Port of Bremen
 No. in Survey held at Bremen Date, First Survey 17th Jan. Last Survey 20th June 1930
 Reg. Book. 17959 on the STEEL SCOR "CLAY MACKENZIE" (Number of Visits 15)
 Tons { Gross 6544
 Net 4142
 Built at Newcastle By whom built W. & A. R. Co. Ltd. Yard No. 273 When built 1917-6-10
 Engines made at Bremen By whom made Abt. J. & W. "Wron" Engine No. 273 When made 1930
 Boilers made at ✓ By whom made ✓ Boiler No. ✓ When made ✓
 Shaft Horse Power at Full Power 3122 Owners The Clan Line Steamers, Ltd. Port belonging to Glasgow
 Nom. Horse Power as per Rule 610 Is Refrigerating Machinery fitted for cargo purposes ✓ Is Electric Light fitted ✓

EXHAUST
 STEAM TURBINE ENGINES, &c.—Description of Engines Tauer-Wach System No. of Turbines Ahead 1
Astern 1
 Direct coupled, single or double reduction geared to 1 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.			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							88	838	1			
2ND							104	854	1			
3RD							120	870	1			
4TH							136	886	1			
5TH							153	903	1			
6TH							176	926	1			
7TH							200	950	1			
8TH												

Shaft Horse Power at each turbine 1030 Revolutions per minute, at full power, of each Turbine Shaft 3500 1st reduction wheel 450/424
 main shaft 76.5 Pitch Circle Diameter, 1st pinion 202.52 mm 2nd pinion 379.76 mm 1st reduction wheel 1620.19 mm main wheel 2105.78 mm
 Width of Face, 1st reduction wheel 280 mm main wheel 580 mm Distance between centres of pinion and wheel faces and the centre of the adjacent bearings,
 1st pinion 395.255 mm 2nd pinion 440 mm 1st reduction wheel ✓ main wheel 550 mm Flexible Pinion Shafts, diameter 1st ✓ 2nd ✓
 Pinion Shafts, diameter at bearings External 1st 150 mm 2nd 350 mm diameter at bottom of teeth of pinion 1st 191.52 mm 2nd 363.21 mm
 Internal 280 mm
 Wheel Shafts, diameter at bearings, 1st 250-260 mm main 500 mm diameter at wheel shroud, 1st 3550 mm main 2015 mm
 Generator Shafts, diameter at bearings ✓ Propelling Motor Shafts, diameter at bearings ✓
 Main Shafting, diameter of Tunnel Shafting as per rule 384.17 mm as fitted ✓ diameter of Thrust Shafting as per rule 358 mm as fitted ✓
 diameter of Screw Shaft as per rule 425.44 mm as fitted ✓ Is the screw shaft fitted with a continuous liner the whole length of the stern tube ✓ Is the after end of the liner
 made watertight in the propeller boss ✓ 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 ✓ Length of Stern Bush ✓ Diameter of Propeller 5640 mm
 Pitch of Propeller ✓ No. of Blades ✓ State whether Moveable ✓ Total Surface ✓ square 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 I.P. Turbine can exhaust direct to the Condenser ✓
 No. of Turbines fitted with astern wheels ✓ Total number of power driven Main and Auxiliary Pumps ✓
 No. and size of Feed Pumps ✓ How driven ✓ No. and size of Pumps connected to the Main Bilge Line ✓
 How driven ✓ No. and size of Ballast Pumps ✓ No. and size of Lubricating Oil Pumps, including
 Spare Pump 2 Are two independent means arranged for circulating water through the Oil Cooler ✓ No. and size of suction
 connected to both Main Bilge Pumps and Auxiliary Bilge Pumps; In Engine and Boiler Room ✓ and in Holds, &c.
 No. and size of Main Water Circulating Pump Bilge Suctions ✓ No. and size of Donkey Pump Direct Suctions
 to the Engine Room Bilges ✓ 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 connections with the sea direct on the skin of the ship ✓ Are they Valves or Cocks
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates ✓ Are the Discharge Pipes 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
 What pipes are carried through the bunkers ✓ How are they protected
 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 Screw Shaft Tunnel watertight ✓ Is it fitted with a watertight door ✓ worked from ✓

OILERS, &c.—(Letter for record) Total Heating Surface of Boilers
 Is Forced Draft fitted ✓ No. and Description of Boilers ✓

Is a Report on Main Boilers now forwarded? ☒

Is a Donkey Boiler fitted? ☒

If so, is a report now forwarded? ☒

Plans. Are approved plans forwarded herewith for Shafting 30/1/30
(If not state date of approval)

Main Boilers ☒

Auxiliary Boilers ☒

Donkey Boilers ☒

Spare Gear. State the articles supplied:—

As required by the Rules.

The foregoing is a correct description,

Deutsche Schiff- und Maschinenbau Aktiengesellschaft

Manufacturer.

Dates of Survey while building
During progress of work in shops -- 1930: Jan. 17, March 11, 14, 19, 31, April 3, 26, May 1, 8, 14.
During erection on board vessel --- June 3, 10, 16, 19, 20
Total No. of visits 15.

Dates of Examination of principal parts—Casings 14/3, 1/5 Rotors 11/3 Blading 19/3 Gearing 19/3
Wheel shaft 26/4 Thrust shaft 26/4 Pinion 11/3 Screw shaft 16/6 Propeller 16/6
Stern tube ✓ Turbine 10/6 Engines holding down bolts 10/6
Completion of pumping arrangements ✓ Boilers fixed ✓ Turbine 20/6/30
Main boiler safety valves adjusted ✓ Thickness of adjusting washers ✓
Material and tensile strength of Rotor shaft T. M. Steel 36.3 ton per sq. inch Identification Mark on Do. LLOYD'S 3735
Material and tensile strength of Flexible Pinion Shaft -4- 49.1 " " " " Identification Mark on Do. -4- 2990
Material and tensile strength of Pinion shaft -4- 46.8 " " " " Identification Mark on Do. -4- 109
Material and tensile strength of 1st Reduction Wheel Shaft -4- 36.3 " " " " Identification Mark on Do. -4- 3140
Material of Wheel shaft T. M. Steel Identification Mark on Do. LLOYD'S 7027 Material of Thrust shaft T. M. Steel Identification Mark on Do. LLOYD'S 306
Material of Tunnel shafts -4- Identification Marks on Do. LLOYD'S 7026 Material of Screw shafts T. M. Steel Identification Marks on Do. LLOYD'S 2985
Material of Steam Pipe Oil coupling wheel rim T. M. Steel LLOYD'S 2970 Test pressure 8.1 kg/cm² Date of test 8/5/30.
Is an installation fitted for burning oil fuel no 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 no If so, state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, etc.) *This Kanow-Wach Exhaust Turbine has been constructed under Special Survey in accordance with the approved plan, the Secretary's letter and in all other respects in conformity with the Society's Rules. The materials used in the construction and the workmanship are good. The Turbine has been examined under working conditions on board in combination with the existing steam reciprocating engine and was found to work satisfactorily. (Please see Rpt. H attached.)*

The amount of Entry Fee ... £ 111 When applied for, Apr. 9
Special ... £ attached
Donkey Boiler Fee ... £
Travelling Expenses (if any) £

G. H. E. Adams
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 8 JUL 1930

Assigned

See Rpt 8 (Bunn 1275) attached



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Foundation