

List of **apt. 4a.**

No. 17674.

JUL 1944

REPORT ON STEAM TURBINE MACHINERY.

Received at London Office

D.O.

Date of writing Report **6th July, 1944**, When handed in at Local Office **8th July, 1944**. Port of **MIDDLESBROUGH.**

No. in Survey held at **MIDDLESBROUGH.** Date, First Survey **29th Nov. 1943** Last Survey **28th June, 1944.**
Reg. Book. (Number of Visits **67.**)

on the **S.S. "EMPIRE MILNER".** Tons } Gross **8135.**
Net **4604.**

Built at **Haverton Hill-on-Tees.** By whom built **Furness Shipbuilding Co.** Yard No. **358.** When built **1944. 6.**

Engines made at **West Hartlepool.** By whom made **Richardsons Westgarth & Co** Engine No. **2742** When made **1944.**

Boilers made at **-do-** By whom made **-do-** Boiler No. **2742.** When made **1944.**

Shaft Horse Power at Full Power **6800** Owners **Ministry of War Transport.** Port belonging to **Middlesbrough.**

Nom. Horse Power as per Rule **1210** Is Refrigerating Machinery fitted for cargo purposes **No.** Is Electric Light fitted **Yes.**

STEAM TURBINE ENGINES, &c.—Description of Engines No. of Turbines Ahead _____ Astern _____
Direct coupled, single or double reduction geared to propelling shafts. No. of primary pinions to each set of reduction gearing, 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 _____
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.
EXPANSION												
D												
D												
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H												
H												

Shaft Horse Power at each turbine _____ Revolutions per minute, at full power, of each Turbine Shaft _____ 1st reduction wheel _____
in shaft _____ Pitch Circle Diameter, 1st pinion _____ 2nd pinion _____ 1st reduction wheel _____ main wheel _____

Width of Face, 1st reduction wheel _____ main wheel _____ Distance between centres of pinion and wheel faces and the centre of the adjacent bearings, _____
pinion _____ 2nd pinion _____ 1st reduction wheel _____ main wheel _____ Flexible Pinion Shafts, diameter 1st _____ 2nd _____

Pinion Shafts, diameter at bearings External 1st { _____ 2nd { _____ diameter at bottom of teeth of pinion 1st _____ 2nd _____
Internal _____

Wheel Shafts, diameter at bearings, 1st _____ main _____ diameter at wheel shroud, 1st _____ main _____

Generator Shafts, diameter at bearings _____ Propelling Motor Shafts, diameter at bearings _____

Shafting, diameter of Tunnel Shafting as per rule _____ as fitted _____ diameter of Thrust Shafting as per rule _____ as fitted _____
diameter of Screw Shaft as per rule _____ 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 _____

Is 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 _____
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 _____
tapped or protected between the liners _____ Is an approved appliance fitted at the after end of the shaft to permit of it being efficiently _____

Length of Stern Bush _____ Diameter of Propeller _____
No. 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 _____
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 _____
driven _____ No. and size of Ballast Pumps _____ No. and size of Lubricating Oil Pumps, including _____

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 _____
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 _____
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 _____

Are pipes carried through the bunkers _____ How are they protected _____
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 _____
department to another _____ Is the Screw Shaft Tunnel watertight _____ Is it fitted with a watertight door _____ worked from _____

Boilers, &c.—(Letter for record _____) Total Heating Surface of Boilers _____ Working Pressure _____
Forced Draft fitted _____ No. and Description of Boilers _____



004145-004152-0156

Is a Report on Main Boilers now forwarded? See Hartlepool Report No. 18511.

Are ~~Is~~ Donkey Boilers fitted? Yes If so, is a report now forwarded? See Middlesbrough Report Nos. 17562 & 17572.

Plans. Are approved plans forwarded herewith for Shafting - Main Boilers - Auxiliary Boilers - Donkey Boilers - (If not state date of approval)

Spare Gear. State the articles supplied:— As per rule requirements (see also attached list).

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building: During progress of work in shops - 1943. Nov. 29, Dec. 10, 17, 22, 23, 28, 29, 30. 1944. Jan. 3, 4, 7, 10, 11, 12, 13, 17, 20, 21, 25, 26, 31, Feb. 7, 22, 23, 28, March 14, 17, 20, 22, 23, 24, 27, April 3, 5, 6, 11, 12, 17, 20, 25, 26, 28, May, 2, 3, 9, 17, 18, 22, 26, 31, June 1, 2, 6, 7, 9, 12, 13, 15, 16, 19, 20, 21, 23, 26, 27, 28, 29, 30. Total No. of visits 67.

Dates of Examination of principal parts: Casings - Rotors - Blading - Gearing -

Wheel shaft - Thrust shaft - Tunnel shafts 5.4.44. Screw shaft 7.2.44. Propeller 7.2.44.

Stern tube 31.1.44. Engine and boiler seatings 22.2.44. Engines holding down bolts 26.4.44. & 28.6.44.

Completion of pumping arrangements 22.5.44. Boilers fixed 23.3.44. Engines tried under steam 22.5.44.

Main boiler safety valves adjusted 22.5.44. & 26.5.44. Thickness of adjusting washers Port blr. drum 3/8" Spt. P. 9/32" S. 13/32" Star. " " 5/16" " " 9/32" S. 17/32"

Material and tensile strength of Rotor shaft - Identification Mark on Do. -

Material and tensile strength of Flexible Pinion Shaft - Identification Mark on Do. -

Material and tensile strength of Pinion shaft - Identification Mark on Do. -

Material and tensile strength of 1st Reduction Wheel Shaft - Identification Mark on Do. -

Material of Wheel shaft - Identification Mark on Do. - Material of Thrust shaft - Identification Mark on Do. -

Material of Tunnel shafts - Identification Marks on Do. - Material of Screw shafts - Identification Marks on Do. -

Material of Steam Pipes - Test pressure - Date of test -

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 "EMPIRE LAW".

General Remarks (State quality of workmanship, opinions as to class, etc. These engines and boilers were fitted on board this vessel in accordance with the approved plans and Rule Requirements and on completion the machinery was tried out under working conditions and found satisfactory and in my opinion is not eligible for record of LMC 6.44. and notation of TS. GL. 6.44, forced draught and superheated.

Table with columns for fee type (Special LMC, Donkey Boiler Fee, Supervision, Travelling Expenses), amount in pounds, and dates when applied for or received.

Signature of L. Norman Stuart, Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES. 25 JUL 1944

Assigned + LMC 6.44 2 NTB 490 lb (SMA 475 lb) 2 DA 180 lb

