

# REPORT ON MACHINERY.

No. 77854

Received at London Office

Date of writing Report 19 When handed in at Local Office 13/5/24 Port of NEWCASTLE-UPON-TYNE WFO. 14 MAY. 1924.  
 No. in Survey held at Jan. 21. 1924 Date, First Survey Oct. 23. 1922 Last Survey 12/5/1924  
 Reg. Book. S.S. "BRITISH DUCHESS" (Number of Visits 101)

Master J. L. Thompson & Co. Built at Sunderland By whom built J. L. Thompson & Co. Tons } Gross }  
 Engines made at Newcastle By whom made Palmer & Co. Ltd. No. 20276. when made 1924 Net }  
 Boilers made at do By whom made do when made 1924  
 Registered Horse Power 581 Owners British Tankers Ltd. Port belonging to do

Nom. Horse Power as per Section 28 581 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes

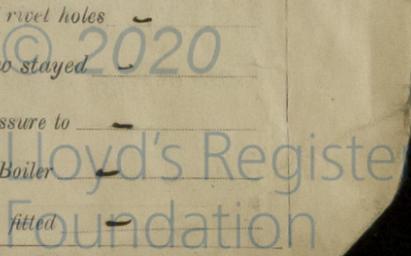
ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 28"-46"-76" Length of Stroke 51" Revs. per minute 70 Dia. of Screw shaft 15.75" Material of screw shaft Steel  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tight in the propeller boss Yes  
 If the liner is in more than one length are the joints burned No 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 Yes  
 If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 5'-5"  
 Dia. of Tunnel shaft 13.958" Dia. of Crank shaft journals 14.65" Dia. of Crank pin 15" Size of Crank webs 28 1/2" x 10" Dia. of thrust shaft under collars 15" Dia. of screw 14-3" Pitch of Screw 17-9" No. of Blades 4 State whether moveable Yes Total surface 105 sq ft  
 No. of Feed pumps 2 Diameter of ditto 4 1/2" Stroke 27" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 27" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 2 Sizes of Pumps 1 1/2" x 4 1/2" x 8" No. and size of Suctions connected to both Bilge and Donkey pumps in Engine Room 3 @ 3 1/2" In Holds, &c. None

No. of Bilge Injections 1 sizes 9 1/2" Connected to condenser, or to circulating pump air pump Is a separate Donkey Suction fitted in Engine room & size 6"  
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible 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 None  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes  
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from None

BOILERS, &c.—(Letter for record S(7)) Manufacturers of Steel J. Spencer & Co.

Total Heating Surface of Boilers 8634 sq ft Is Forced Draft fitted Yes No. and Description of Boilers 3 S.E. Smith 3.5B  
 Working Pressure 180 lbs Tested by hydraulic pressure to 320 lbs Date of test 31/1/23 No. of Certificate 9722  
 Can each boiler be worked separately Yes Area of fire grate in each boiler oil fuel No. and Description of Safety Valves to each boiler 2 Spring loaded Area of each valve 12.566" Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 1'-6" Mean dia. of boilers 15-9 3/8" Length 12-3 1/2" Material of shell plates Steel  
 Thickness 1 5/16" Range of tensile strength 28/32 TONS Are the shell plates welded or flanged No Descrip. of riveting: cir. seams D.R.L. long. seams T.R.D.B.S. Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 9 1/2" Lap of plates or width of butt straps 1-8 3/4"  
 Per centages of strength of longitudinal joint rivets 91.74% Working pressure of shell by rules 183.9 lbs Size of manhole in shell 18 x 12" plate 85.52%  
 Size of compensating ring 2-1 1/2" x 2-9" x 1 1/2" No. and Description of Furnaces in each boiler 3 Ferguson 3CF Material Steel Outside diameter 4-1 1/2"  
 Length of plain part top Thickness of plates bottom Description of longitudinal joint Welded No. of strengthening rings None  
 Working pressure of furnace by the rules 186 Combustion chamber plates: Material Steel Thickness: Sides 3/8" Back 1/8" Top 3/8" Bottom 1/8"  
 Pitch of stays to ditto: Sides 9 3/8" x 10 3/8" Back 9" x 9 1/2" Top 1 1/4" x 8" If stays are fitted with nuts or riveted heads SIDES & TOP RINGS, NUTS. Working pressure by rules 184.8  
 Material of stays Steel Area at smallest part 2.71 sq in. Area supported by each stay 133.2 sq in. Working pressure by rules 182.7 End plates in steam space: Material Steel Thickness 1 3/8" Pitch of stays 23" x 22 1/2" How are stays secured NUTS & WASHERS Working pressure by rules 183 Material of stays Steel  
 Area at smallest part 8.48 sq in. Area supported by each stay 517.5 Working pressure by rules 183 Material of Front plates at bottom Steel  
 Thickness 3/8" Material of Lower back plate Steel Thickness 1 1/2" Greatest pitch of stays 14 1/2" x 9 1/2" Working pressure of plate by rules 298  
 Diameter of tubes 3 1/2" Pitch of tubes 4 1/2" x 4 3/8" Material of tube plates Steel Thickness: Front 1 5/8" Back 1 5/8" Mean pitch of stays 14.125"  
 Pitch across wide water spaces 14 1/2" Working pressures by rules 211 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9 1/2" x 1 1/4" Length as per rule 2-10 1/8" Distance apart 8" Number and pitch of stays in each Two @ 11 1/2"  
 Working pressure by rules 194 Steam dome: description of joint to shell None % of strength of joint None

Diameter None Thickness of shell plates None Material None Description of longitudinal joint None Diam. of rivet holes None  
 Pitch of rivets None Working pressure of shell by rules None Crown plates None Thickness None How stayed None  
 SUPERHEATER. Type None Date of Approval of Plan None Tested by Hydraulic Pressure to None  
 Date of Test None Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler None  
 Diameter of Safety Valve None Pressure to which each is adjusted None Is Easing Gear fitted None



IS A DONKEY BOILER FITTED?

Yes ✓

If so, is a report now forwarded?

Yes ✓

SPARE GEAR. State the articles supplied:

One set coupling, 2 bottom end, 4 top end & 4 main bearing bolts with one pair crank pin bushes, 1 eccentric sheave & strap, 2 top end bearings, 1 slide spindle block, 24 funk ring bolts, 1 set rings & springs for each piston, 1 set rings for 40 piston valves, one air pump rod, one set air pump valves, 24 condenser tubes, 50 feed valves, one set metallic packing for each rod, 2 feed pump valves & seats, one set bilge pump valves & seats, one propeller shaft, 2 cast iron propeller blades, one spring for each size fitted, 9 propeller studs & nuts, 2 main feed check valves, 2 aux feed check valves, 6 plain & 1 step tubes, 12 tube stoppers, a quantity of bolts & nuts & iron of various sizes & deal ✓

The foregoing is a correct description,

Palmers Shipbuilding & Iron Co., Ltd

D. Kemp

Manufacturer.

General Manager, Engine Works.

Table with columns for Dates of Survey while building, During progress of work in shops, and During erection on board vessel. Includes dates from 1922 Oct to 1924 May.

Is the approved plan of main boiler forwarded herewith? Yes ✓

Is the approved plan of donkey boiler forwarded herewith? Yes ✓

Dates of Examination of principal parts - Cylinders 22/2/23 Slides 16/2/23 Covers 16/2/23 Pistons 14/2/23 Rods 5/3/23

Connecting rods 12/2/23 Crank shaft 7/2/23 Thrust shaft 25/5/23 Tunnel shafts 28/3/23 Screw shaft 29/5/23 Propeller 26/3/23

Stern tube 26/3/23 Steam pipes tested 25/5/23 Engine and boiler seatings 7/5/24 Engines holding down bolts 10/5/24

Completion of pumping arrangements 12/5/24 Boilers fixed 16/5/24 Engines tried under steam 12/5/24

Completion of fitting sea connections 1/3/24 Stern tube 1/3/24 Screw shaft and propeller 1/3/24

Main boiler safety valves adjusted 16/5/24 Thickness of adjusting washers 5 3/8 P 3/8 P 3/8 P 3/8 P 3/8 P DONKEY BOILER F 3/8 A 3/8

Material of Crank shaft Steel Identification Mark on Do. 6327/WC Material of Thrust shaft Steel Identification Mark on Do. 6327/WC

Material of Tunnel shafts Steel Identification Marks on Do. 6327/WC Material of Screw shafts Steel Identification Marks on Do. 6327/WC

Material of Steam Pipes S.S. Steel ✓ Test pressure 540 lbs ✓

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 Section 49 of the Rules been complied with? Yes ✓

Is this machinery duplicate of a previous case? Yes ✓ If so, state name of vessel British Ambassador ✓

General Remarks (State quality of workmanship, opinions as to class, &c. The engines & boilers of this vessel

have been built under Special Survey & the material & workmanship are good. On completion they were examined while running full power trials at sea & found satisfactory

The machinery throughout is now in good & efficient condition & eligible in my opinion to have the word LMC-5-24 marked in Red in the Society's Register Book, also fitted for oil fuel F.P. above 150°F & the requirements of section 49 of the Rules fully complied with.

It is submitted that this vessel is eligible for THE RECORD. + LMC 5. 24. FD. CL. Fitted for oil Fuel 5. 24. FP. above 150°F.

Signature of Engineer Surveyor to Lloyd's Register of Shipping, dated 16/5/24.

Table with columns for The amount of Entry Fee, Special, Donkey Boiler Fee, and Travelling Expenses (if any).

Committee's Minute Assigned L.M.C. 5. 24 F.D. C.L. Fitted for oil fuel 5. 24 F.P. above 150°F.

