

REPORT ON MACHINERY.

No. 73957

Date of writing Report 13th Dec 1920 When handed in at Local Office 14th Dec 1920 Port of Newcastle on Tyne
 No. in Survey held at 65477 on the S.S. Lord Broughton, ex German S.S. PATMOS
 Reg. Book. (Number of Visits) Gross 1907 Net 1209
 Master Built at Rostock By whom built Akt. Ges. Neptun When built 1902
 Engines made at Rostock By whom made Akt. Ges. Neptun when made 1902
 Boilers made at do By whom made do when made 1902
 Registered Horse Power Owners Byron S. S. Co. Ltd Port belonging to London
 Nom. Horse Power as per Section 28 208 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
 Original Size 20 7/8 x 35 1/16 x 55 1/8 Length of Stroke 35 7/16 Revs. per minute 66 Dia. of Screw shaft as per rule 12 3/8 Material of screw shaft as fitted 12 3/8
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube No liners Is the after end of the liner made water tight 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 Length of stern bush 57 7/8
 Dia. of Tunnel shaft as per rule 10 1/8 Dia. of Crank shaft journals as per rule 10 6/8 Dia. of Crank pin 10 7/8 Size of Crank webs 19 x 7 Dia. of thrust shaft under collars 10 7/8 Dia. of screw 14 - 6 Pitch of Screw 15 - 5 No. of Blades 4 State whether moveable yes Total surface 53 1/2 sq. ft.
 No. of Feed pumps 2 Diameter of ditto 3 1/8 Stroke 15 1/2 Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 3 1/8 Stroke 15 1/2 Can one be overhauled while the other is at work yes
 No. of Donkey Engines 2 Sizes of Pumps 5 1/4 x 3 7/16 x 5 duplex No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Three 2 1/2" diameter In Holds, &c. Two 2 1/2" in each hold and one 2 1/2" in tunnel well
 No. of Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine room & size 2 1/2"
 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
 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
 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 R.R. top platform

BOILERS, &c. — (Letter for record 5) Manufacturers of Steel Hot Room, probably German.
 Total Heating Surface of Boilers 3426 sq. ft. Is Forced Draft fitted No No. and Description of Boilers No, Single Ended
 Working Pressure 175 lb per sq. in. Tested by hydraulic pressure to 200 lb per sq. in. Date of test No. of Certificate
 Can each boiler be worked separately yes Area of fire grate in each boiler 38 sq. ft. No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 8.29 sq. in. Pressure to which they are adjusted 180 lb per sq. in. Are they fitted with easing gear yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 20" Mean dia. of boilers 12-11 1/2 Length 10-1 1/2 Material of shell plates Steel
 Thickness 1 3/32 Range of tensile strength 25/32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Double straps 5 rivets in long seams Diameter of rivet holes in long seams 1 3/32 Pitch of rivets 12 5/16 Lap of plates or width of butt straps 21 9/16
 Per centages of strength of longitudinal joint rivets 95.5 Working pressure of shell by rules 206 lb Size of manhole in shell 15 3/4 x 11 7/8
 Size of compensating ring 7 7/8 x 1 3/32 No. and Description of Furnaces in each boiler 3, Morrison Material Steel Outside diameter 47 1/4
 Length of plain part top bottom Thickness of plates crown bottom Description of longitudinal joint Welded No. of strengthening rings
 Working pressure of furnace by the rules 178 Combustion chamber plates: Material Steel Thickness: Sides 19/32 Back 19/32 Top 19/32 Bottom 13/16
 Pitch of stays to ditto: Sides 7/8 x 7/8 Back 7/8 x 7/8 Top 7/8 x 7/8 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 196
 Material of stays Steel Area at smallest part 1 1/4 Area supported by each stay 62.0 Working pressure by rules 187 End plates in steam space: Material Steel Thickness 1" Pitch of stays 15 1/4 x 15 1/4 How are stays secured Double nuts Working pressure by rules 190 Material of stays Steel
 at smallest part 2 7/8 Area supported by each stay 282.0 Working pressure by rules 226 Material of Front plates at bottom Steel
 Thickness 29/32 Material of Lower back plate Steel Thickness 7/8 Greatest pitch of stays 12 1/4 x 7 7/8 Working pressure of plate by rules 253
 Diameter of tubes 3 3/8 Pitch of tubes 1 3/4 x 1 1/2 Material of tube plates Steel Thickness: Front 29/32 Back 29/32 Mean pitch of stays 9 1/4
 Pitch across wide water spaces 14 7/16 Working pressures by rules 290 lb Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 6 13/16 x 1 1/2 Length as per rule 23 3/4 Distance apart 8 5/8 Number and pitch of stays in each No, 7 7/8
 Working pressure by rules 258 lb Steam dome: description of joint to shell None % of strength of joint
 Diameter Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes
 Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed
 UPPER HEATER. Type Schmidt Date of Approval of Plan Tested by Hydraulic Pressure to
 Date of Test Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler
 Diameter of Safety Valve 1 5/8 Pressure to which each is adjusted 183 lb per sq. in. Is Easing Gear fitted yes

W132-0049

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR.

State the articles supplied:

No top & 2 bottom end bolts & nuts, two main bearing bolts and nuts, one set of coupling bolts & nuts, one set of feed and one set of bilge pump valves, assorted bolts and nuts, a few bars of iron, two main slide valve spindles, a set of back & front pump links & brasses, one circulating and one air pump rod, 3rd crank shaft, one set bottom end and one set top end bushes, one tumbler block for link gear, one set of L.P. piston rings etc.

The foregoing is a correct description,

Mark on brass plate on each boiler.
Mkies. Es. Reptum. Rotor.
N 520 Jahm Dir Inf 1902
NW 13 CM.

Manufacturer.

Dates of Survey while building
During progress of work in shops --
During erection on board vessel --
Total No. of visits

Is the approved plan of main boiler forwarded herewith

" " " donkey " " "

Dates of Examination of principal parts—Cylinders 18/10/20 Slides 18/10/20 Covers 18/10/20 Pistons 18/10/20 Rods 18/10/20

Connecting rods 18/10/20 Crank shaft 20/10/20 Thrust shaft 20/10/20 Tunnel shafts 20/10/20 Screw shaft 13/10/20 Propeller 13/10/20

Stern tube 13/10/20 Steam pipes tested 8/11/20 Engine and boiler seatings 18/10/20 Engines holding down bolts 18/10/20

Completion of pumping arrangements 6/12/20 Boilers fixed 18/10/20 Engines tried under steam 10/12/20

Completion of fitting sea connections 13/10/20 Stern tube 13/10/20 Screw shaft and propeller 13/10/20

Main boiler safety valves adjusted 1/12/20 Thickness of adjusting washers Port B 7/32" 7/32" Star B 3/16" 1/4"

Material of Crank shaft Steel Identification Mark on Do. None Material of Thrust shaft Steel Identification Mark on Do. None

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

Material of Steam Pipes Steel or Wrought Iron Test pressure 540 lb per sq. in.

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 Section 49 of the Rules been complied with ✓

Is this machinery duplicate of a previous case No If so, state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, &c.) The main engines, boilers and

Auxiliaries of this vessel have now been opened out and examined.

The scantlings of the boilers are in accordance with the approved

plan and the shafting is in accordance with the rules for a

working pressure of 175 lb per sq. in. The engines, boilers and the

auxiliaries have now been put in good order, tried under full

steam pressure and found satisfactory.

The machinery of this vessel, is now in my opinion eligible

for record L.M.C. 12-20, 175 lb 2 Brs, H.S. 3426 lb G.S. 76

lb and propeller shaft run 12-20.

The amount of Entry Fee ... £ : : When applied for.
Special ... £ : :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
See Report

Committee's Minute

Assigned

FRI. JAN. 7 1921

L.M.C. 12-20

FRI. FEB 11 1921

George Murdoch
Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation