

REPORT ON MACHINERY.

No. 27960
SAT. OCT. 23 1920

Received at London Office

Date of writing Report 20-10-20 When handed in at Local Office 21-10-20 Port of Chunderland
 Date, First Survey 1 Aug 1919 Last Survey 14 Oct 1920
 No. in Survey held at Chunderland (Number of Visits)
 Reg. Book. on the Steel S.S. INSTON.
 Master Built at Cuth Shields By whom built Messrs. E. Kennoldson & Co. (N:185) When built 1920
 Engines made at Chunderland By whom made Messrs. Macboll & Pollock, Ltd. (N:311) when made 1920
 Boilers made at do By whom made do when made 1920
 Registered Horse Power Owners S. Instone & Co. Port belonging to London
 Horse Power as per Section 28 235 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

GINES, &c.—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3
 a. of Cylinders 20, 33, 54 Length of Stroke 36" Revs. per minute 80 Dia. of Screw shaft as per rule 11-6" Material of Inpt. steel
 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
 the propeller boss Yes 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
 ers are fitted, is the shaft lapped or protected between the liners Length of stern bush 3-11-1/2"
 ia. of Tunnel shaft as per rule 10-1" Dia. of Crank shaft journals as per rule 10-5" Dia. of Crank pin 10-3/4" Size of Crank webs 20-1/2 x 6-3/8" Dia. of thrust shaft under
 lars 10-3/4" Dia. of screw 14-6" Pitch of Screw 13-9" No. of Blades 4 State whether moveable No Total surface 65 sq ft
 o. of Feed pumps 2 Diameter of ditto 3" Stroke 20" Can one be overhauled while the other is at work Yes
 o. of Bilge pumps 2 Diameter of ditto 3" Stroke 20" Can one be overhauled while the other is at work Yes
 o. of Donkey Engines 3 Sizes of Pumps 6-1/2 x 8-1/2 x 8-1/2; 6 x 4 x 6; 5-1/4 x 3-1/2 x 5-1/4 No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room 4 @ 2-1/2 In Holds, &c. Inport 1-3/4; No. 1 Hold 2-2-1/2 (Prs); No. 2 Hold 2-2-1/2 (Prs);
No. 3 Hold 2-2-1/2 (Prs); No. 4 Hold 1-2-1/2; Tunnel well 1-2-1/2
 o. of Bilge Injections 1 sizes 6" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room & size 1-1/2 @ 3-1/2"
 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 ✓
 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 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 Upper platform

MILERS, &c.—(Letter for record S) Manufacturers of Steel John Spencer & Sons, Ltd.

Total Heating Surface of Boilers 4164 sq ft Is Forced Draft fitted No No. and Description of Boilers Two Single ended Marine
 Working Pressure 190 Tested by hydraulic pressure to 380 Dates of test 31-5-20; 8-6-20 Nos. of Certificates 3692, 3694

Can each boiler be worked separately Yes Area of fire grate in each boiler 58 sq ft No. and Description of Safety Valves to
 each boiler Two spring loaded Area of each valve 5-93" Pressure to which they are adjusted 195 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 14" Mean dia. of boilers 15-0" Length 10-6" Material of shell plates Steel
 Thickness 1-1/32" Range of tensile strength 29-3/4 to 33-3/4 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams D.R.

Long. seams D.B., T.R. Diameter of rivet holes in long. seams 1-1/4" Pitch of rivets 8-13/16" Lap of plates or width of butt straps 18-1/2"
 Percentages of strength of longitudinal joint rivets 86 Working pressure of shell by rules 192 Size of manhole in shell 16 x 12

Size of compensating ring 29 x 28-1/2 x 1-1/32" No. and Description of Furnaces in each boiler Three; Brighton Material Steel Outside diameter 48-1/2"
 Length of plain part top ✓ Thickness of plates crown 5/8" Description of longitudinal joint Welded No. of strengthening rings 1

Working pressure of furnace by the rules 207-6 Combustion chamber plates: Material Steel Thickness: Sides 41/64" Back 11/16" Top 45/64" Bottom 15/16"
 Pitch of stays to ditto: Sides 8-1/2 x 8-1/2" Back 8-1/4 x 10" Top 8-1/2 x 10" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 196

Material of stays Steel Area at smallest part 1-73" Area supported by each stay 72-25" Working pressure by rules 191-5 End plates in steam space:
 Material Steel Thickness 1-11/32" Pitch of stays 24 x 16" How are stays secured D.N. + W. Working pressure by rules 196 Material of stays Steel

Area at smallest part 7-24" Area supported by each stay 384" Working pressure by rules 196 Material of Front plates at bottom Steel
 Thickness 1-1/64" Material of Lower back plate Steel Thickness 33/64" Greatest pitch of stays 13-1/4" Working pressure of plate by rules 194-5

Diameter of tubes 3-1/4" Pitch of tubes 4-1/2 x 4-1/2" Material of tube plates Steel Thickness: Front 1-1/64" Back 53/64" Mean pitch of stays 13-5/16 x 9"
 Pitch across wide water spaces 14-1/4" Working pressures by rules 195 Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 7-3/8 x 2" Length as per rule 28" Distance apart 10-1/4" Number and pitch of stays in each 2 @ 8-1/2"
 Working pressure by rules 193 Steam dome: description of joint to shell % 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

SUPERHEATER. Type 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 Pressure to which each is adjusted Is Easing Gear fitted

IS A DONKEY BOILER FITTED?

Yes

If so, is a report now forwarded?

Yes

SPARE GEAR. State the articles supplied:—

NOTES 1.2.2

The foregoing is a correct description,

MACCOLL & POLLOCK, LTD.

G. R. Pollock

Manufacturer.

Dates of Survey while building

(During progress of work in shops --
During erection on board vessel --
Total No. of visits

1919 Aug 1 Sept 14 Nov 2 19 Dec 28 Jan 7 14 21 22 24 Feb 5 12 25 Mar 4 23 26 Apr 27 29 May 10 17 24 Jun 7 14 21 28 Jul 5 12 19 Aug 6 11 20 21 Sep 1 7 Oct 5 6 8 12 13 14
(41 +)

Is the approved plan of main boiler forwarded herewith

" " " donkey " " "

Dates of Examination of principal parts—Cylinders 23-3-20 Slides 11-8-20 Covers 19-11-19 Pistons 19-11-19 Rods 7-1
Connecting rods 14-5-20 Crank shaft 9-3-20 Thrust shaft 20-8-20 Tunnel shafts 20-8-20 Screw shaft 20-8-20 Propeller 1-9
Stern tube 31-8-20 Steam pipes tested 13-10-20 Engine and boiler seatings 14-10-20 Engines holding down bolts 12-10-20
Completion of pumping arrangements 14-10-20 Boilers fixed 5-10-20 Engines tried under steam 14-10-20
Completion of fitting sea connections 14-10-20 Stern tube 14-10-20 Screw shaft and propeller 5-10-20
Main boiler safety valves adjusted 14-10-20 Thickness of adjusting washers Boiler - P. 7, S. 13, 32; S. boiler - P. 3, 8, 11 x 10 1/4
Material of Crank shaft Ingot steel Identification Mark on Do. N° 4449 W.C. Material of Thrust shaft Ingot steel Identification Mark on Do. N° 311
Material of Tunnel shafts Ingot steel Identification Marks on Do. N° 311 E.W.R. Material of Screw shafts Ingot steel Identification Marks on Do. N° 311
Material of Steam Pipes Solid drawn Copper Test pressure 400 lbs. " " Spare N° 311A
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 Machinery has been built and installed under special survey. The Materials and Workmanship are good.
The vessel has returned to the Builder's Yard. To complete the Machinery survey the pumping connections in Holds are to be completed, the spare gear examined, & the electric light installation examined. Newcastle Surveyors advised.
On completion of survey the vessel's Machinery is eligible in my opinion to have record of LMC with date

The amount of Entry Fee ... £ 2: 0: 0: When applied for, 22 OCT 1920
Special ... £ 31: 15: 0: When received, 22 OCT 1920
Donkey Boiler Fee ... £ : : :
Travelling Expenses (if any) £ : : :
2.12.19.20

Committee's Minute FRI. 11 FEB. 1921

Assigned

Ed. W. Hutter
Engineer Surveyor to Lloyd's Register of Shipping.
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SUNDERLAND.

Certificate (if required) to be sent to

The Surveyors are requested not to write on or below the space for Committee's Minute.