

Rpt. 4.

REPORT ON MACHINERY

No. 69063

Received at London Office 19 AUG. 1916

Date of writing Report 7th August 1916 When handed in at Local Office AUG 18 1916 Port of NEWCASTLE-ON-TYNE
No. in Survey held at Newcastle Date, First Survey 5th July 15 Last Survey 7th Aug 1914
Reg. Book. on the S.S. "Harden" (Number of Flats) 66 Tons { Gross 2677 Net 1607
Master Built at Newcastle By whom built Wood Skinner & Co When built 1916
Engines made at Newcastle By whom made North Eastern Marine Eng Co 2216 when made 1916
Boilers made at do By whom made do when made 1916
Registered Horse Power Owners The Burnett Steam Ship Co Ltd Port belonging to Newcastle
Nom. Horse Power as per Section 28 329 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Simple Expansion No. of Cylinders 3 No. of Cranks 3
Dia. of Cylinders 24"-40"-65" Length of Stroke 42" Revs. per minute 75 Dia. of Screw shaft as per rule 13.13" Material of screw shaft as fitted 13.5" screw shaft
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 Yes 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 No Length of stern bush 5'-0"
Dia. of Tunnel shaft as per rule 11.8.3" Dia. of Crank shaft journals as per rule 12.4.2" Dia. of Crank pin 12 5/8" Size of Crank webs 20"x7 3/4" Dia. of thrust shaft under collars 12 5/8" Dia. of screw 16'-0" Pitch of Screw 16'-0" No. of Blades 4 State whether moveable No Total surface 76 sq ft
No. of Feed pumps 2 Diameter of ditto 3 1/2" Stroke 21" Can one be overhauled while the other is at work Yes
No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 21" Can one be overhauled while the other is at work Yes
No. of Donkey Engines 3 Sizes of Pumps 8"x10"x10"-8"x10"x10"-7"x5"x1" No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Two 3" dia. In Holds, &c. Two 3" dia. in each hold, one 3" dia. in tunnel well
No. of Bilge Injections 1 size 8" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 2-3"
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 None
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 Suctions to Fore Hold How are they protected Wood casing
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
Dates of examination of completion of fitting of Sea Connections 17.4.16 of Stern Tube 17.4.16 Screw shaft and Propeller 30.6.16
Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform

BOILERS, &c.—(Letter for record S) Manufacturers of Steel J. Spencer & Sons
Total Heating Surface of Boilers 5524 sq ft Is Forced Draft fitted No No. and Description of Boilers Two, single-ended
Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 22.3.16 No. of Certificate 8849
Can each boiler be worked separately Yes Area of fire grate in each boiler 74.6 sq ft No. and Description of Safety Valves to each boiler Two, Spring Area of each valve 8.29 sq in 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 4 ft Mean dia. of boilers 16'-6 1/2" Length 11'-0" Material of shell plates Steel
Thickness 1 1/4" Range of tensile strength 29 3/4 - 33 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams S. Lap long. seams S.B.S. & Riv Diameter of rivet holes in long. seams 1 1/32" Pitch of rivets 8 15/16" Lap of plates or width of butt straps 18 7/8"
Per centages of strength of longitudinal joint rivets 8.5.7 plate 8.5.6 Working pressure of shell by rules 181 lbs Size of manhole in shell 16" x 12"
Size of compensating ring 35 3/4" x 31 3/4" x 1 1/4" No. and Description of Furnaces in each boiler 4- Leighton Material Steel Outside diameter 44 1/2"
Length of plain part top 17 1/2" crown 17 1/2" bottom 17 1/2" Description of longitudinal joint Welded No. of strengthening rings 4
Working pressure of furnace by the rules 183 lbs Combustion chamber plates: Material Steel Thickness: Sides 23/32" Back 23/32" Top 23/32" Bottom 15/16"
Pitch of stays to ditto: Sides 10 1/2" x 9 3/8" Back 10 1/2" x 9 3/8" Top 10 1/2" x 9 3/8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 180 lbs
Material of stays Steel Diameter at smallest part 2.03 sq in Area supported by each stay 98.3 sq in Working pressure by rules 185 lbs End plates in steam space
Material Steel Thickness 1 1/16" Pitch of stays 26 3/8" x 24" How are stays secured In W Working pressure by rules 181 lbs Material of stays Steel
Diameter at smallest part 11.04 sq in Area supported by each stay 63.3 sq in Working pressure by rules 181 lbs Material of Front plates at bottom Steel
Thickness 1" Material of Lower back plate Steel Thickness 29/32" Greatest pitch of stays 14 1/4" Working pressure of plate by rules 195 lbs
Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 3/8" Material of tube plates Steel Thickness: Front 1" Back 13/16" Mean pitch of stays 8 7/8"
Pitch across wide water spaces 14 1/4" Working pressures by rules 188 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9 1/4" x 1 1/2" Length as per rule 34" Distance apart 9 3/8" Number and pitch of stays in each 2-10 1/2"
Working pressure by rules 182 lbs Superheater or Steam chest; how connected to boiler None Can the superheater be shut off, and the boiler worked separately Yes Diameter Length Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness
If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed
Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

If not, state whether, and when, one will be sent

Is a Report also sent on the Hull of the Ship?

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:-

Two top end, two bottom end & two main bearing bolts & nuts, one set of coupling bolts, one set of feed & bilge pump valves, a quantity of assorted bolts nuts & washers & a propeller.

The foregoing is a correct description,

FOR THE NORTH-EASTERN MARINE ENGINEERING CO. LD.

J. Harrison

Manufacturer.

Dates of Survey while building: During progress of work in shops - Feb 5-16 Mar 3-5 9-18 23-25 30-31 Apr 7-9 12-22 May 17-19 Jun 4-8 9-17 18-19 July 1-8 1916
During erection on board vessel - 20-21-22 Nov 8-17 Dec 3-13 22-1916 Jan 10-17 24-30 Feb 4-7 15-18 24-28 Mar 8-10 14-21
Total No. of visits 66

Is the approved plan of main boiler forwarded herewith?

Dates of Examination of principal parts - Cylinders 7-4-15 Slides 12-4-15 Covers 4-6-15 Pistons 22-4-15 Rods 18-6-15
Connecting rods 7-8-15 Crank shaft 20-3-16 Thrust shaft 31-3-15 Tunnel shafts 17-5-15 Screw shaft 15-2-16 Propeller 8-6-15
Stern tube 7-4-16 Steam pipes tested 27-7-16 Engine and boiler seatings 17-7-16 Engines holding down bolts 11-7-16
Completion of pumping arrangements 11-7-16 Boilers fixed 11-7-16 Engines tried under steam 7-8-16
Main boiler safety valves adjusted 7-8-16 Thickness of adjusting washers P.B. $P \frac{13}{32}$ S $\frac{3}{8}$ S.B. $P \frac{13}{32}$ S $\frac{11}{32}$ S.B. $P \frac{3}{8}$ S $\frac{3}{8}$
Material of Crank shaft Steel Identification Mark on Do. C.C. 3-16 Material of Thrust shaft Steel Identification Mark on Do. C.C. 3-15
Material of Tunnel shafts Steel Identification Marks on Do. C.C. 5-15 Material of Screw shafts Iron Identification Marks on Do. C.C. 2-16
Material of Steam Pipes Copper Test pressure 360 lbs

Is an installation fitted for burning oil fuel?

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? If so, state name of vessel.

General Remarks (State quality of workmanship, opinions as to class, &c.) The engines & boilers of this vessel have been constructed under special survey & the materials & workmanship are found to be good. The engines have been tried under steam & the safety valves adjusted at the working pressures. The machinery of this vessel is now in good & safe working condition & eligible in our opinion to have the notation of +LMC 8-16.

It is submitted that this vessel is eligible for THE BROOD + LMC 8.16.

The amount of Entry Fee £ 3 0 0
Special £ 36 9 0
Donkey Boiler Fee £ 1
Travelling Expenses (if any) £ 14 9 1916

When applied for, 19

When received, 15/9/16

Committee's Minute

TUE. 22. AUG. 1916

Assigned

+ LMC 8.16

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping



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