

REPORT ON MACHINERY.

Received at London Office

Date of writing Report 10 When handed in at Local Office 24 JUL 1922 Port of SUNDERLAND TUE. 25 JUL. 1922

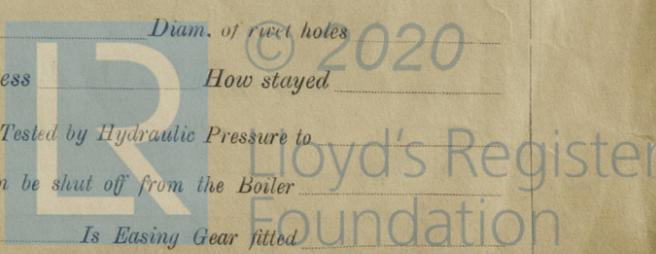
No. in Survey held at SUNDERLAND. Date, First Survey 1st Decr. 1921 Last Survey 13th July 1922
Reg. Book. 65714 on the new steel S/S "LIGHTFOOT" (Number of Visits 19)

Master Built at Sunderland By whom built J. Brown & Sons Ltd (S/S No 169) When built 1922
Engines made at Sunderland By whom made N.E. Marine Engineering Co Ltd (No 2481) when made 1922
Boilers made at Sunderland By whom made N.E. Marine Engineering Co Ltd (No 2481) when made 1922
Registered Horse Power Owners The Hill Steam Shipping Co Ltd. Port belonging to Newcastle
Nom. Horse Power as per Section 28 199 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 5
Dia. of Cylinders 20 1/2", 33", 54" Length of Stroke 39" Revs. per minute 70 Dia. of Screw shaft as per rule 11.82" Material of screw shaft J. 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
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 yes If two liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 3'-11 1/2"
Dia. of Tunnel shaft as per rule 10.318" Dia. of Crank shaft journals as per rule 10.833" Dia. of Crank pin 10 7/8" Size of Crank webs 16" x 6 1/2" Dia. of thrust shaft under collars 10 7/8" Dia. of screw 14'-9" Pitch of Screw 15'-6" No. of Blades 4 State whether moveable no Total surface 680 sq ft
No. of Feed pumps 2 Diameter of ditto 3" Stroke 1'-9" Can one be overhauled while the other is at work yes
No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 1'-9" Can one be overhauled while the other is at work yes
No. of Donkey Engines Two Sizes of Pumps 5 1/2" & 3 1/2" x 5" FEED No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room 2 @ 2 1/2" & 1 @ 4" in well In Holds, &c. 2 @ 2 1/2" After hold
- 2 @ 2 3/4" Tunnel well - 1 @ 2 3/4"
No. of Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump b.p. Is a separate Donkey Suction fitted in Engine room & size yes, 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 forward hold suction How are they protected under timber boards
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 top platform

BOILERS, &c.—(Letter for record 5) Manufacturers of Steel John Spencer & Sons Ltd 2 S.B.
Total Heating Surface of Boilers 30920 sq ft Is Forced Draft fitted no No. and Description of Boilers Two single ended marine
Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 27-1-21 No. of Certificate 3748
Can each boiler be worked separately yes Area of fire grate in each boiler 38.50 sq ft No. and Description of Safety Valves to each boiler two, direct spring Area of each valve 4.90" Pressure to which they are adjusted 185 Are they fitted with easing gear yes
Smallest distance between boilers or uptakes and bunkers or woodwork 2'-6" Mean dia. of boilers 13'-0" Length 10'-6" Material of shell plates steel
Thickness 1 3/64" Range of tensile strength 28-32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D.S.R.
long. seams D.B.S. TR Diameter of rivet holes in long. seams 1 1/32" Pitch of rivets 9 9/16" Lap of plates or width of butt straps 19"
Per centages of strength of longitudinal joint rivets 86.69 Working pressure of shell by rules 180 Size of manhole in shell 16" x 12"
Size of compensating ring flanged No. and Description of Furnaces in each boiler 2 Deighton Material steel Outside diameter 3'-9 3/8"
Length of plain part top bottom Thickness of plates crown bottom 3 1/32" Description of longitudinal joint welded No. of strengthening rings
Working pressure of furnace by the rules 180 Combustion chamber plates: Material steel Thickness: Sides 3/4" Back 25/32" Top 3/4" Bottom 15/16"
Pitch of stays to ditto: Sides 11 1/8" x 8 1/2" Back 10 1/8" x 10 1/4" Top 11" x 8 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 181
Material of stays steel Area at smallest part 2.030" Area supported by each stay 100.80" Working pressure by rules 181 End plates in steam space:
Material steel Thickness 1 1/4" Pitch of stays 22" x 18" How are stays secured DN&W Working pressure by rules 183 Material of stays steel
Area at smallest part 6.80" Area supported by each stay 3960" Working pressure by rules 180 Material of Front plates at bottom steel
Thickness 3/4" Material of Lower back plate steel Thickness 15/16" Greatest pitch of stays 14 1/2" x 10 3/4" Working pressure of plate by rules 185
Diameter of tubes 3 1/4" Pitch of tubes 4 3/4" x 4 1/16" Material of tube plates steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 10 5/8"
Pitch across wide water spaces 4 1/2" (5/8" P) Working pressures by rules 192 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 2 @ 9 1/8" x 3/4" Length as per rule 2'-6 1/2" Distance apart 11" Number and pitch of stays in each 2 @ 8 1/2"
Working pressure by rules 180 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

SUPERHEATER. Type Horizontal 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? *no*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— *Two connecting rods top and bottom end bolts and nuts, two main bearing bolts, one set of coupling bolts, one set of feed and bilge pump valves, iron and bolts of various sizes one propeller.*

The foregoing is a correct description,
FOR THE NORTH EASTERN MARINE ENGINEERING CO. LTD

O. F. Adams Manufacturer.

Dates of Survey while building
During progress of work in shops -- 1921. Dec. 1, 1922. Jan. 27, 31, Feb. 3, 17, 20, 22, Mar. 19, 16, 22, 21, 29, May 8, June 28, July 4, 5, 7, 13
During erection on board vessel ---
Total No. of visits *19*

Is the approved plan of main boiler forwarded herewith *yes*
" " " donkey " " "

Dates of Examination of principal parts—Cylinders *20-2-22* Slides *16-3-22* Covers *16-3-22* Pistons *22-2-22* Rods *1-3-22*
Connecting rods *29-3-22* Crank shaft *27-1-22* Thrust shaft *27-1-22* Tunnel shafts *27-1-22* Screw shaft *29-3-22* Propeller *9-3-22*
Stern tube *29-3-22* Steam pipes tested *4-7-22* Engine and boiler seatings *8-5-22* Engines holding down bolts *5-7-22*
Completion of pumping arrangements *7-7-22* Boilers fixed *5-7-22* Engines tried under steam *7-7-22*
Completion of fitting sea connections *8-5-22* Stern tube *28-6-22* Screw shaft and propeller *28-6-22*
Main boiler safety valves adjusted *7-7-22* Thickness of adjusting washers *all 7" / 16"*

Material of Crank shaft *1 steel* Identification Mark on Do. *LLOYD'S N°2481 L.C.D. 27-1-22* Material of Thrust shaft *1 steel* Identification Mark on Do. *LLOYD'S N°2481 L.C.D.*
Material of Tunnel shafts *1 steel* Identification Marks on Do. *LLOYD'S N°2481 L.C.D.* Material of Screw shafts *1 steel* Identification Marks on Do. *LLOYD'S N°2481 L.C.D.*
Material of Steam Pipes *2 lapwelded wrought iron* Test pressure *600 lbs 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 materials and workmanship are good. The machinery has been constructed under special survey and is eligible in my opinion for classification and the record + LMC 7, 22.

It is submitted that this vessel is eligible for THE RECORD. + LMC 7. 22. CL.

S. C. Davis 26/7/22

The amount of Entry Fee ... £ *3* : -
Special ... £ *49* : *15*
* Donkey Boiler Fee ... £ :
Travelling Expenses (if any) £ :
When applied for, *24 JUL 1922*
When received, *19/8/22*

S. C. Davis
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. JUL 28 1922*
Assigned *+ LMC 7. 22*



Certificate (if required) to be sent to SUNDERLAND. The Surveyors are requested not to write on or below the space for Committee's Minute.