

# REPORT ON MACHINERY.

No. 12416  
18 MAR. 1920

Received at London Office

Date of writing Report 11<sup>th</sup> March 1920 When handed in at Local Office 12<sup>th</sup> March 1920 Port of Aberdeen.

No. in Survey held at Aberdeen. Date, First Survey 23<sup>rd</sup> Sep<sup>r</sup> 1919 Last Survey 10<sup>th</sup> March 1920  
Reg. Book.

on the machinery & boiler of S/S "BEAULY FIRTH" (Number of visits 21.)

Master Built at Aberdeen By whom built John Lewis & Sons (82) When built 1920.

Engines made at Aberdeen By whom made John Lewis & Sons (153) when made 1920.

Boilers made at do. By whom made do. (92) when made 1920.

Registered Horse Power Owners The Furum S.S. Co., Newcastle. Port belonging to Glasgow.

Nom. Horse Power as per Section 28 83 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted No.

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 12 1/2" - 21" - 34" Length of Stroke 24" Revs. per minute 110 Dia. of Screw shaft as per rule 7/8" Material of screw shaft Iron

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 1 length 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 No space If two

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 2'-6"

Dia. of Tunnel shaft as per rule 6.34 as fitted none Dia. of Crank shaft journals as per rule 6.68 as fitted 4" Dia. of Crank pin 4" Size of Crank webs 12 3/4" x 4 1/2" Dia. of thrust shaft under

collars 1/2" Dia. of screw 9'-0" Pitch of Screw 11'-0" No. of Blades 4 State whether moveable No Total surface 30 sq ft

No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 12" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 2 1/2" Stroke 12" Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two Sizes of Pumps BALLAST 6" x 4" x 8" GENERAL 5 1/4" x 3 1/2" x 5" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 1 @ 2 1/2", 2 @ 2" + 1 @ 2" in Blk. Room In Holds, &c. 2 @ 2" in Hold 1 @ 2 1/2" in aft peak.

No. of Bilge Injections 1 sizes 3" Connected to condenser, or to circulating pump C.P. Is a separate Donkey Suction fitted in Engine room & size Yes 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 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 Hold Suctions How are they protected Strong 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

Is the Screw Shaft Tunnel watertight No tunnel Is it fitted with a watertight door worked from

OILERS, &c.—(Letter for record 5) Manufacturers of Steel The Steel Company of Scotland.

Total Heating Surface of Boilers 15 1/3 sq ft Is Forced Draft fitted No. No. and Description of Boilers One Single Ended marine.

Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 14.1.20. No. of Certificate 981

Can each boiler be worked separately Yes Area of fire grate in each boiler 52.14 sq ft No. and Description of Safety Valves to

each boiler 2 Relief Spring Area of each valve 5.94 sq in Pressure to which they are adjusted 185 Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork BUNKERS Mean dia. of boilers 13'-0" Length 10'-6" Material of shell plates S

Thickness 1/8" Range of tensile strength 28/32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams D.R. Lap.

Long. seams T.R.D.B.S. Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8 1/4" Lap of plates or width of butt straps 1 1/8"

Percentage of strength of longitudinal joint rivets 88.9 plate 85.6 Working pressure of shell by rules 193 Size of manhole in shell 16" x 12"

Size of compensating ring In shell 7/8" x 1/4" No. and Description of Furnaces in each boiler 3 Plain Material S Outside diameter 3'-3 1/2"

Length of plain part top 6'-10 1/8" bottom 6'-3 1/2" Thickness of plates crown 3/4" bottom 3/4" Description of longitudinal joint Weld. No. of strengthening rings 1

Working pressure of furnace by the rules 181.4 Combustion chamber plates: Material S Thickness: Sides 1/16" Back 2 1/32" Top 1/16" Bottom 1/16"

Thickness of stays to ditto: Sides 9 1/2" x 8 1/4" Back 9 1/2" x 8" Top 9 1/2" x 7 1/2" If stays are fitted with nuts or riveted heads Nuts. Working pressure by rules 193.

Material of stays S Area at smallest part 1.46 sq in Area supported by each stay 46 sq in Working pressure by rules 185.2 End plates in steam space:

Material S Thickness 1/8" Pitch of stays 18" x 18" How are stays secured DOUBLE NUTS WASHERS Working pressure by rules 185 Material of stays S

Area at smallest part 6.33 sq in Area supported by each stay 324 sq in Working pressure by rules 203 Material of Front plates at bottom S

Thickness 1/32" Material of Lower back plate S Thickness 29/32" Greatest pitch of stays 14 1/4" x 9 1/2" Working pressure of plate by rules 194

Diameter of tubes 3 1/2" Pitch of tubes 4 3/4" x 4 3/4" Material of tube plates S Thickness: Front 1/32" Back 2 1/32" Mean pitch of stays 9 1/2" x 9 1/2"

Thickness across wide water spaces 14 1/2" Working pressures by rules 181.2 Girders to Chamber tops: Material S Depth and

Thickness of girder at centre 8 1/4" x 9 1/16" (2) Length as per rule 2 1/2" Distance apart 1/2" Number and pitch of stays in each 2 @ 9 1/2"

Working pressure by rules 225 Steam dome: description of joint to shell NONE. % of strength of joint

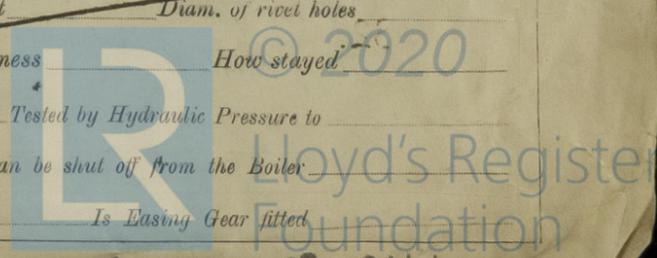
Material Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes

Material 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

Material of Test Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Material of Safety Valve Pressure to which each is adjusted Is Easing Gear fitted



002978-002988-0144

IS A DONKEY BOILER FITTED? *No.*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— *2 Bottom end Bolts & Nuts, 2 Top end Bolts & Nuts, 2 Main bearing bolts & nuts, one set of coupling bolts, one set each of feed, bilge, air & circulating pumps, one main & one donkey check valve, one safety valve spring, 6 junk ring studs & nuts, a quantity of assorted bolts, nuts and iron rod & plate.*

The foregoing is a correct description,  
FOR JOHN LEWIS & SONS, LTD.,

*John J. Donaldson*

Manufacturer.

Dates of Survey while building { During progress of work in shops -- } *SEPT. 23<sup>rd</sup>, OCT. 1, 14, 21, 31, NOV. 10, DEC. 9, 23 JAN. 13, 14, 16, 20, 22, 23, 26, FEB. 21,*  
{ During erection on board vessel -- } *MARCH 1, 3, 5, 8, 10.*  
Total No. of visits *21.*

Is the approved plan of main boiler forwarded herewith *Yes.*

Is the approved plan of donkey boiler forwarded herewith

Dates of Examination of principal parts—Cylinders *9.12.19.* Slides *9.12.19.* Covers *9.12.19.* Pistons *9.12.19.* Rods *9.12.19.*  
Connecting rods *9.12.19.* Crank shaft *LEITH* Thrust shaft *23.12.19* Tunnel shafts  Screw shaft *23.12.19* Propeller *26.1.20.*  
Stern tube *20.1.20.* Steam pipes tested *5.3.20* Engine and boiler seatings *21.2.20* Engines holding down bolts *1.3.20.*  
Completion of pumping arrangements *10.3.20.* Boilers fixed *1.3.20* Engines tried under steam *10.3.20*  
Completion of fitting sea connections *21.2.20* Stern tube *21.2.20* Screw shaft and propeller *21.2.20.*  
Main boiler safety valves adjusted *10.3.20.* Thickness of adjusting washers *Port 13/32" Starb 3/8"*  
Material of Crank shaft *Steel* Identification Mark on Do. *LLOYDS 4560 GAH* Material of Thrust shaft *Steel* Identification Mark on Do. *LLOYDS 1181 A 28/2/19 WNF*  
Material of Tunnel shafts *none* Identification Marks on Do. Material of Screw shafts *Iron* Identification Marks on Do. *LLOYDS 1182 A 23/12/19 WNF*  
Material of Steam Pipes *Solid drawn Copper 3 1/2 bore x 6 W.G.* Test pressure *360 lbs/sq"*

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. *These engines and boiler have been constructed under Special Survey in accordance with the approved drawing and the Rules of the Society. The materials and workmanship are of good quality.*

*The machinery has been securely fitted on board the vessel and tried under steam with satisfactory results. It is eligible in our opinion, to have record of L.M.C. 3.20. in the Register Book.*

It is submitted that this vessel is eligible for *L.M.C. 3.20* *WHL 20/3/20*

*John J. Donaldson*

The amount of Entry Fee ... £ *1 : 0* : When applied for, *14/3 1920*  
Special ... £ *12 : 9* :  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £  : : When received, *7/11/20 RBN*

*W. H. Hasset* *W. Wilson*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE. MAY. 11 1920*  
Assigned *L.M.C. 3.20*

CERTIFICATE WRITTEN



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