

# REPORT ON MACHINERY.

No. 39547  
WED. FEB. 4 - 1920

Received at London Office

of writing Report

19

When handed in at Local Office

26. 1.

1920

Port of Glasgow

Survey held at Coatbridge.

Date, First Survey 27. 5. 19.

Last Survey 20. 1. 1920

on the Machinery for S.S. "Pentland Firth".

(Number of Visits 25.

Tons } Gross 638  
          } Net 296.

Builder T. Black.

Built at Ardrossan.

By whom built Ardrossan Shipbuilding Co. Ltd. 306

When built 1919.

Engines made at Coatbridge.

By whom made Wm Beardmore & Co. Ltd. 545.

when made 1919.

Engines made at Paisley

By whom made Fleming & Ferguson

when made 1919.

Registered Horse Power

Owners

Gullie & Co

Port belonging to Glasgow

Horse Power as per Section 28 99. ✓

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted No

Types of Engines Triple Expansion ✓

No. of Cylinders 3 ✓

No. of Cranks 3 ✓

Diameter of Cylinders 14" 23" 38" ✓

Length of Stroke 27" ✓

Revs. per minute 103 ✓

Dia. of Screw shaft as per rule 8.08" Material of M.S. ✓  
as fitted 8.5" 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

Is the propeller boss fitted with a continuous liner the whole length of the stern tube Yes ✓

If the liner does not fit tightly at the part

Are the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes ✓

If two

Are the bearings fitted, is the shaft lapped or protected between the liners

Length of stern bush 36" ✓

Dia. of Tunnel shaft as per rule 7.119" ✓

Dia. of Crank shaft journals as per rule 4.47" ✓

Dia. of Crank pin 7.625" ✓

Size of Crank webs 15" x 4 1/2" ✓

Dia. of screw 10" - 0" ✓

Pitch of Screw 11" - 0" ✓

No. of Blades 4. ✓

State whether moveable No. Total surface 33 1/2 sq ft.

No. of Feed pumps 2 ✓

Diameter of ditto 3" ✓

Stroke 13 1/2" ✓

Can one be overhauled while the other is at work Yes ✓

No. of Bilge pumps 2 ✓

Diameter of ditto 2 1/2" ✓

Stroke 13 1/2" ✓

Can one be overhauled while the other is at work Yes ✓

No. of Donkey Engines Two ✓

Sizes of Pumps 6 x 4 1/4 x 6 Feed ✓  
7 x 8 x 8 Ballast ✓

No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room 2 @ 2 1/2" 2 @ 2" ✓

In Holds, &c. Fore peak 1 @ 2 1/2" No. 1 2 @ 2" No. 2 2 @ 2" ✓

Fore peak 1 @ 2 1/2" ✓

Bilge Injections 1 sizes 3 1/2" ✓

Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size Yes 2 1/2" ✓

Are 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 Yes ✓

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 ✓

How are the pipes carried through the bunkers Forward Suction ✓

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 ✓

Date of examination of completion of fitting of Sea Connections 20/8/19 ✓

of Stern Tube 20/8/19 ✓

Screw shaft and Propeller 20/8/19 ✓

Is the Screw Shaft Tunnel watertight No tunnel ✓

Is it fitted with a watertight door ✓

worked from ✓

Suppliers, &c. (Letter for record) Manufacturers of Steel

Heating Surface of Boilers	Is Forced Draft fitted	No. and Description of Boilers	
Working Pressure	Tested by hydraulic pressure to	Date of test	No. of Certificate
Can each boiler be worked separately	Area of fire grate in each boiler	No. and Description of Safety Valves to	
Boiler	Area of each valve	Pressure to which they are adjusted	Are they fitted with easing gear
Greatest distance between boilers or uptakes and bunkers or woodwork	Mean dia. of boilers	Length	Material of shell plates
Thickness	Range of tensile strength	Are the shell plates welded or flanged	Descrip. of riveting: cir. seams
Seams	Diameter of rivet holes in long. seams	Pitch of rivets	Lap of plates or width of butt straps
Percentages of strength of longitudinal joint	Working pressure of shell by rules	Size of manhole in shell	
Material of compensating ring	No. and Description of Furnaces in each boiler		Material
Material of plain part	Thickness of plates	Description of longitudinal joint	No. of strengthening rings
Working pressure of furnace by the rules	Combustion chamber plates: Material	Thickness: Sides	Back
Material of stays to ditto: Sides	Back	Top	Working pressure by rules
Material of stays	Diameter at smallest part	Area supported by each stay	Working pressure by rules
Material	Thickness	Pitch of stays	How are stays secured
Material of stays	Diameter at smallest part	Area supported by each stay	Working pressure by rules
Material of Front plates at bottom	Material of Lower back plate	Thickness	Greatest pitch of stays
Working pressure of plate by rules	Pitch of tubes	Material of tube plates	Thickness: Front
Back	Mean pitch of stays	Working pressures by rules	Girders to Chamber tops: Material
Depth and	Length as per rule	Distance apart	Number and pitch of stays in each
Working pressure by rules	Superheater or Steam chest; how connected to boiler	Can the superheater be shut off and the boiler worked	
Material	Diameter	Length	Thickness of shell plates
Description of longitudinal joint	Diam. of rivet	Material of flue plates	Thickness
Working pressure by rules	Diameter of flue	Material of flue plates	Thickness
End plates: Thickness	How stayed	Are they fitted with easing gear	
Working pressure of end plates	Area of safety valves to superheater		

attached

report

See separate

**VERTICAL DONKEY BOILER—**

Manufacturers of Steel

No.	Description	When made	Where fixed
Made at	By whom made	No. of Certificate	Fire grate area
Working pressure	tested by hydraulic pressure to	Date of test	Date of adjustment
Valves	No. of Safety Valves	Area of each	Pressure to which they are adjusted
If fitted with casing gear	If steam from main boilers can enter the donkey boiler	Dia. of donkey boiler	Length
Material of shell plates	Thickness	Range of tensile strength	Descrip. of riveting long. seams
Dia. of rivet holes	Whether punched or drilled	Pitch of rivets	Lap of plating
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.
Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates
Working pressure of furnace by rules	Thickness of furnace crown plates	Radius of do.	Stayed by
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey

**SPARE GEAR.** State the articles supplied:— *Two connection rod top end bolts & nuts, Two bottom end bolts & nuts, Two main bearing bolts & nuts, one set feed bilge pump valves, one set coupling bolts & nuts, Assorted iron & bolts & nuts*

The foregoing is a correct description,

**WILLIAM BEARDMORE & CO., LIMITED,** Manufacturer. *per R. Sneddon*

Dates of Survey while building  
 During progress of work in shops --- 1919 May 27, June 10, 12, 17, 19, 23, July 8, 28, Aug. 11, 15, 20, 26, Sept 2, 15, 19, 23, Oct 1, 7, 10, 31  
 During erection on board vessel --- 1920 Jan 20  
 Total No. of visits 25

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders 11-8-19. Slides 15-8-19. Covers 11-8-19. Pistons 11-8-19. Rods 11-8-19. Material of Connecting rods 15-8-19. Crank shaft 28-7-19. Thrust shaft 11-8-19. Tunnel shafts *None*. Screw shaft 11-8-19. Propeller 11-8-19. Stern tube 11-8-19. Steam pipes tested 31-10-19. Engine and boiler seatings 10/12/19. Engines holding down bolts 10/12/19. Completion of pumping arrangements 20-1-20. Boilers fixed 27-12-19. Engines tried under steam 20-1-20. Main boiler safety valves adjusted 20-1-20. Thickness of adjusting washers *Port Valve 3/8 Starb Valve 3/8* Identification Mark on Do. *HP 2453* Material of Crank shaft M.S. Identification Mark on Do. *HP 28719* Material of Thrust shaft M.S. Identification Marks on Do. Material of Tunnel shafts *None* Identification Marks on Do. Material of Screw shafts M.S. Identification Marks on Do. Material of Steam Pipes *Solid drawn copper* Test pressure *360 lb<sup>a</sup>*

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *The Machinery has been built under Special Survey and in accordance with the Rules of the L.M.C. Society. The Machinery has been dispatched to Glasgow to be fitted on board.*

*The engines and boiler have now been securely fitted on board the vessel and tried under steam with satisfactory results. The machinery is eligible in our opinion to have notification of +LMC 1-20 in the Register Book*

It is submitted that this vessel is eligible for **THE RECORD +LMC 1-20**

The amount of Entry Fee .. £ 1.00  
 Special .. .. £ 14.17  
 Donkey Boiler Fee .. .. £ :  
 Travelling Expenses (if any) £ :  
 When applied for, 3/2/20  
 When received, 8/4/20

*John Barr. R. W. Coombe*  
 Engineer Surveyor to Lloyd's Register of British & Foreign

Committee's Minute **GLASGOW 8-FEB 1920**

Assigned **+LMC 1,20**

MACHINERY CERT,  
 WRITTEN 4.2.20



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GLASGOW

Certificate (if required) to be sent to

26/120

*JED 7/2/20 JRR*