

REPORT ON MACHINERY.

FRI. JUN. 26 1914.

No. 16636

Received at London Office

THU. APR. 16. 1914

Date of writing Report 19 When handed in at Local Office 9/4/10/14 Port of Greenock
 No. in Survey held at Greenock Date, First Survey 11th Nov. 1913 Last Survey 4th April, 1914
 Reg. Book. (Number of Visits 30)

on the SCREW STEAMER "KEYNOR."

Tons } Gross 1806
 Net 1090

Master Built at Londonderry By whom built North of Ireland S.S. Coy. No. 58 When built 1914
 Engines made at Greenock By whom made John G. Kincaid & Co. Ltd. when made 1914
 Boilers made at Greenock By whom made John G. Kincaid & Co. Ltd. when made 1914
 Registered Horse Power 163 Owners The Keystone Transportation Co. Ltd. belonging to Newcastle on Tyne
 Nom. Horse Power as per Section 163 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c. — Description of Engines Triple expansion No. of Cylinders Three No. of Cranks Three

Dia. of Cylinders 16-26-44 Length of Stroke 26" Revs. per minute 97 Dia. of Screw shaft 9 1/2" 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 one 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 If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 3' 3"

Dia. of Tunnel shaft 8' 6" as per rule 8' 6" as fitted 8' 6" Dia. of Crank shaft journals 9" as per rule 9" as fitted 9" Dia. of Crank pin 9 1/2" Size of Crank webs 16 1/2" x 5 1/2" Dia. of thrust shaft under collars 9 1/2" Dia. of screw 12' 0" Pitch of Screw 13' 0" No. of Blades 4 State whether moveable Yes Total surface 4559 sq. ft.

No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 18" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 18" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines Four Sizes of Pumps 2-9 1/2" x 10" 1-4" x 6" 4-2 1/2" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 3-4" In Holds, &c. 6-4" + 2-6"

No. of Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump C.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 No

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 None How are they protected No

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 2.4.14 of Stern Tube 2.4.14 Screw shaft and Propeller 2.4.14

Is the Screw Shaft Tunnel watertight None Is it fitted with a watertight door No worked from No

BOILERS, &c. — (Letter for record 5) Manufacturers of Steel Hydelbridge Steel Coy.

Total Heating Surface of Boilers 2407 sq. ft. Is Forced Draft fitted Yes No. and Description of Boilers 2: Cylindrical Multi: Single

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 10/3/14 No. of Certificate 1166

Can each boiler be worked separately Yes Area of fire grate in each boiler 354 sq. ft. No. and Description of Safety Valves to each boiler 2: Direct Spring Area of each valve 5.94 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 16" Mean dia. of boilers 11' 6" Length 10' 6" Material of shell plates Steel

Thickness 1 1/16" Range of tensile strength 28/32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Lap Double

long. seams Butt Strap Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 4 1/2" 3.3/4" Top of plates or width of butt straps 16"

Per centages of strength of longitudinal joint rivets 83.1 plate 85.78 Working pressure of shell by rules 199 lbs Size of manhole in shell 16" x 12"

Size of compensating ring Flanged Ring No. and Description of Furnaces in each boiler 2: Deighton's Material Steel Outside diameter 43 1/2"

Length of plain part 6' 10 1/2" Thickness of plates 1 1/16" Description of longitudinal joint Weld No. of strengthening rings None

Working pressure of furnace by the rules 189 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 1/16" Top 5/8" Bottom 1/16"

Pitch of stays to ditto: Sides 8 1/4" x 8" Back 9 1/4" x 9 1/4" Top 8 1/4" x 8" If stays are fitted with nuts or riveted heads Auto. Working pressure by rules 191 lbs

Material of stays Steel Diameter at smallest part 1 1/2" Area supported by each stay 70 sq. in. Working pressure by rules 198 lbs End plates in steam space:

Material Steel Thickness 1 1/16" Pitch of stays 15 1/2" x 14 1/2" How are stays secured Double Auto. Working pressure by rules 223 lbs Material of stays Steel

Diameter at smallest part 5.05" Area supported by each stay 225 sq. in. Working pressure by rules 235 lbs Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 3/8" Greatest pitch of stays 14" Working pressure of plate by rules 187 lbs

Diameter of tubes 2 3/4" Pitch of tubes 4" x 4" Material of tube plates Steel Thickness: Front 1" Back 2 1/2" Mean pitch of stays 8"

Pitch across wide water spaces 14" Working pressures by rules 195 lbs 198 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8 1/2" x 1 1/8" Length as per rule 30.4" Distance apart 8" Number and pitch of stays in each 2: 8 1/4"

Working pressure by rules 218 lbs Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked separately No

Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. 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

No. of visits 2nd April 1914 to 17th June 1914. No. of visits 11



VERTICAL DONKEY BOILER— Manufacturers of Steel

No. _____ Description _____

Made at _____ By whom made _____ When made _____ Where fixed _____

Working pressure tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Fire grate area _____ Description of Safety _____

Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ Date of adjustment _____

If fitted with easing 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 _____ Per centage of strength of joint _____ Rivets _____ Plates _____

Working pressure of shell by rules _____ Thickness of shell crown plates _____ Radius of do. _____ No. of stays to do. _____ Dia. of stays _____

Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description of joint _____

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:— 2 Main Bearing Bolt nuts, 2 Crank pin Bush Bolt nuts, 2 Piston Rod Crosshead Bolt nuts, 1 set Coupling Bolt nuts, 1 set Feed pump valves, 1 set Relief pump valves, 1 set Air Pump valves, 1 set Ballast pump valves, 1 set Sanitary pump valves, 6 Condenser tubes & ferrules for same, 4 Propeller Blades, 1 set of Stud nuts for same, 2 main & donkey Check valves

The foregoing is a correct description, Bolt nuts, assorted sizes, 50 lbs iron plates.

John G. Muirhead & Co Ltd Manufacturer.

Dates of Survey while building: During progress of work in shops -- 1913 Nov. 11, 13, 17, Dec. 16, 17, 23, 26, 30, 1914 Jan. 7, 12, 14, 16, 26, 28, 29, Feb. 4.

During erection on board vessel --- 10, 14, 19, 20, 25, Mar. 4, 10, 17, 20, 24, 26, 30, Apr. 3, 4, Belfast, April 2, 9, 15, May 2, 7, 18, 22, June 2, 5, 9, 10, 17.

Total No. of visits 30, Belfast, 11

Is the approved plan of main boiler forwarded herewith Yes

Is the approved plan of donkey boiler forwarded herewith Yes

Dates of Examination of principal parts—Cylinders 25/2/14 Slides 17/3/14 Covers 17/3/14 Pistons 17/3/14 Rods 7/1/14

Connecting rods 25/2/14 Crank shaft Satisfactory Thrust shaft Satisfactory Tunnel shafts Satisfactory Screw shaft 20/3/14 Propeller 24/2/14

Stern tube 20/3/14 Steam pipes tested 27-4-14 Engine and boiler seatings 9-11-14 Engines holding down bolts 25-11-14

Completion of pumping arrangements 10-6-14 Boilers fixed 25-11-14 Engines tried under steam 9-6-14

Main boiler safety valves adjusted 9-6-14 Thickness of adjusting washers 6-8/32

Material of Crank shaft Steel Identification Mark on Do. 3534 Material of Thrust shaft Steel Identification Mark on Do. 3541

Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts Iron Identification Marks on Do. 6132

Material of Steam Pipes Copper Test pressure 1400 lbs per sq

General Remarks (State quality of workmanship, opinions as to class, &c.)

The Engines and Boilers of this vessel were built under special survey and the materials and workmanship are good. When completed at the works they were shipped to Londonderry where they will be fitted on board. When this has been done to the satisfaction of the Society's Surveyors, the machinery tested under steam, the spare gear checked, and the requirements of the Rules in all other respects carried out, the vessel will be eligible in my opinion to have the record of **LMC** (with date of completion) marked in the Society's Register Book.

The above has now been satisfactorily carried out, and in my opinion the vessel is eligible for record **+ L.M.C. 6-14**

It is submitted that this vessel is eligible for THE RECORD, + L.M.C. 6.14. F.D. CL.

J.W.D.
29/6/14
Wm. Austin, R. F. Beveridge
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

GREENOCK

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

The amount of Entry Fee .. £ 2 : : : When applied for.	
£16-6/3-4-6-4-4-4 Special .. £ 24 . 9 : : : 10/4/1914	
£8-3/6-3-6-3-6-3 Donkey Boiler Fee .. £ : : : When received.	
Travelling Expenses (if any) £ 9 - : 15-10 4/6/1914	

new at Londonderry
Committee's Minute
Applied for 18-6-14
Received 22-6-14

FRI, JUL. 3-1914
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