No. 7517.

REPORT ON MACHINERY.

Received at London Office MON. APR. 26. 1915

Date of writing Report 12th April 1915 When handed in at Local Office ____ 19__ Port of Belfast

Name in Survey held at Belfast Date, First Survey 27th Feb 1914 Last Survey 16th April 1915
Official Book. (Number of Visits 86)

Name of Ship on the S.S. Pembrokeshire Tons Gross 7821 Net 4968

Where Built Built at Belfast By whom built Workman Clark & Co Ltd When built 1915

Engines made at Belfast By whom made - when made -

Boilers made at By whom made - when made -

Registered Horse Power Owners Royal Mail S.P. Co Port belonging to Belfast

N.H.P. Horse Power as per Section 28 735 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Single Screw Quadruple Expansion Cylinders 4 No. of Cranks 4

Dia. of Cylinders 27½-39½-57-82 Length of Stroke 54 Revs. per minute 70 Dia. of Screw shaft as per rule 16.35 as fitted 17.12 Material of screw shaft I. 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 in the propeller boss Yes 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 ✓ If two liners are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 5'-9"

Dia. of Tunnel shaft as per rule 14.87 as fitted 15.37 Dia. of Crank shaft journals as per rule 15.61 as fitted 16.12 Dia. of Crank pin 16⅝" Size of Crank web 11"×22½" Dia. of thrust shaft under collars 16⅝" Dia. of screw 19'-6" Pitch of Screw 18'-9" No. of Blades 4 State whether moveable Yes Total surface 125 sq ft

No. of Feed pumps None Diameter of ditto Main Engines Can one be overhauled while the other is at work

No. of Bilge pumps 2 Diameter of ditto 5" Stroke 27" Can one be overhauled while the other is at work Yes

No. of Donkey Engines Five Sizes of Ballast 10×8×10" Temporary 7×6×8" Guard 9×6×10" Feed 12×9×24" F. Water 5×5×6" No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 3-3½" In Holds, &c. 12-3½" 6-2½"

No. of Bilge Injections one sizes 11" Connected to condenser, or to circulating pump Pumps Is a separate Donkey Suction fitted in Engine room & size 2-3½"

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 ✓

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 Both

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 Fore hold suctions How are they protected Wood casings

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 13-11-14 of Stern Tube 17-11-14 Screw shaft and Propeller 14-12-14

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper deck

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Beardmore & Co Ltd

Total Heating Surface of Boilers 10500 sq ft Forced Draft fitted Yes No. and Description of Boilers 4-Single Ended Cylin

Working Pressure 215 lbs Tested by hydraulic pressure to 430 lbs Date of test 20-11-14 No. of Certificate 472

Can each boiler be worked separately Yes Area of fire grate in each boiler 65.5 sq ft No. and Description of Safety Valves to each boiler Two Direct Spring Area of each valve 9.62 sq in Pressure to which they are adjusted 215 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork About 19" Mean dia. of boilers 15'-4½" Length 11'-6" Material of shell plates Steel

Thickness 27/64" Range of tensile strength 30-33½ Tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seam Lap D.R. long. seam D. Butt Treble of rivet holes in long. seams 19/32" Pitch of rivets 10½" Lap of plates or width of butt straps 23⅜"

Per centages of strength of longitudinal joint rivets 89.7 plate 84.8 Working pressure of shell by rules 251 lbs Size of manhole in shell 16"×12"

Size of compensating ring Mc Neils No. and Description of Furnaces in each boiler 4 Morisons Material Steel Outside diameter 42¼"

Length of plain part top 2" bottom 6" Thickness of plates crown 41/64" bottom 41/64" Description of longitudinal joint Welded No. of strengthening rings

Working pressure of furnace by the rules 245 lbs Combustion chamber plates: Material Steel Thickness: Sides 41/64" Back 21/32" Top 41/64" Bottom ⅞"

Pitch of stays to ditto: Sides 8"×8" Back 8"×7⅞" Top 8½"×7⅞" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 215 lbs

Material of stays Steel Area at smallest part 1.76 sq in Area supported by stay 21.55 sq in Working pressure by rules 225 lbs End plates in steam space:

Material Steel Thickness 1 7/16" Pitch of stays 19½"×15" How are stays secured Nuts & Washers Working pressure by rules 219 lbs Material of stays Steel

Area at smallest part 6.625 sq in Area supported by stay 29.25 sq in Working pressure by rules 258 lbs Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 29/32" Greatest pitch of stays 13½"×7¾" Working pressure of plate by rules 233 lbs

Diameter of tubes 2½" Pitch of tubes 3 3/16"×3 5/16" Material of tube plate Steel Thickness: Front 15/64" Back 13/16" Mean pitch of stays 7½"×7¼"

Pitch across wide water spaces 13½" Working pressures by rules 215 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9½"×(¾"+2") Length as per rule 31½" Distance apart 8½"×8¼" Number and pitch of stays in each 3-7⅝"

Working pressure by rules 216 lbs Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked separately 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

W568-0280

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: Propeller shaft, 2 propeller blades, pair crank pin brushes, 2 pair crosshead brushes, air pump bucket, rod & guide head value value seat complete, 2 pair main bearing brushes, piston rod, 2 value spindles, eccentric pulley rod & strap, sets piston rings, M.P. piston value etc. and all gear to Lloyds Rules extra.

The foregoing is a correct description,

FOR WORKMAN, CLARK & CO., LIMITED.

Manufacturer. M H Bell

Dates of Survey while building — During progress of work in shops: 1914; - Feb 27, March 6, 11, 19, 24, April 1, 10, 21, 28 May 4, 6, 11, 13, 14, 23,

During erection on board vessel: June 13, 16, 24, 26, 29 July 5 16 April 1915

Total No. of visits 86

Is the approved plan of main boiler forwarded herewith Yes

" " " donkey " " "

Dates of Examination of principal parts—Cylinders 1-4-14 Sides Covers 5 Pistons Rods

Connecting rod 23-12-14 Crank shaft 21-4 Thrust shaft Tunnel ~~shafts~~ Screw shaft 28-10-14 Propeller 2-10-14

Stern tube 28-10-14 Steam pipes tested 6-11-14 ~~Engine and~~ boiler seatings 19-1-15 Engines holding down bolts 19-1-15

Completion of pumping arrangements 12-4-15 Boilers fixed 11-2-15 Engines tried under steam 16-4-15

Main boiler safety valves adjusted 25-3-15 Thickness of adjusting washers 12 6/7 / 32

Material of Crank shaft S. Steel Identification Mark on Do. LLOYDS R.J.B 30-9-14 Material of Thrust shaft Wo Identification Mark on Do. LLOYDS R.J.B 30-10-14

Material of Tunnel shafts Wo Identification Marks on Do. LLOYDS R.J.B 28 7 14 Material of Screw shafts Wo Identification Marks on Do. LLOYDS R.J.B 28 TO 14

Material of Steam Pipes W-I iron Test pressure 650lbs sq

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

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The workmanship, and the materials are of good description, and on trial under steam in Belfast Lough, the machinery worked satisfactorily.

In my opinion, it is eligible for record +LMC. 4-15 with notation Forced Draft - Electric Light - Reciprocating Machinery

The machinery is a duplicate of that fitted in the S.S. Carmarthen-shire

It is submitted that this vessel is eligible for THE RECORD +LMC 4.15 F.D.

Ref. Mchy.

JWD 26/4/15.

GRR

The amount of Entry Fee .. £ 3 : 0 : When applied for, 12-4-1915

Special .. .. £ 56-15-0

Donkey Boiler Fee .. .. £ V : : When received, 15-4-1915

Travelling Expenses (if any) £ : :

R. F. Bennedge

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

Committee's Minute TUE. APR. 27. 1915

Assigned +LMC 4.15. F.D.

FRI. 10 SEP. 1915

Certificate (if required) to be sent to This office

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

Rpt. 13.

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