

REPORT ON MACHINERY.

Received at London Office 19 APR. 1916

Date of writing Report 17 April 1916 When handed in at Local Office 10

Port of Belfast

No. in Survey held at Belfast
Reg. Book.Date, First Survey 13 July 1915 Last Survey 7 April 1916
(Number of Visits 158)

on the H.M.S. Pentstemon

Master Kemp Built at Belfast By whom built Workman Clark & Co. Ltd. When built 1916

Engines made at Belfast By whom made when made

Boilers made at By whom made when made

Registered Horse Power Owners The Admiralty Port belonging to

Nom. Horse Power as per Section 28 347 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Single Screw 4 Cyl. Triple No. of Cylinders 4 No. of Cranks 4

Dia. of Cylinders 21-35-40-40 Length of Stroke 30 Revs. per minute 162 Dia. of Screw shaft as per rule 10.4 Material of screw shaft 8. 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 Yes If two

liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 50

Dia. of Tunnel shaft as per rule 9.72 Dia. of Crank shaft journals as per rule 10.2 Dia. of Crank pin 10 1/2 Size of Crank webs 7 1/2 x 18 1/2 Dia. of thrust shaft under

collars 10 1/2 Dia. of screw 9-6 Pitch of Screw 12-8 1/2 No. of Blades 4 State whether moveable No Total surface 36 sq ft

No. of Feed pumps 2 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Discharge of ditto Stroke 10 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 See Sizes of Pumps No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 4-3 1/2 & 4-3 1/2 in Stokehold In Holds, &c. 9-2 1/2

No. of Bilge Injections 1 Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room of size 2-3 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

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 Below

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 suction 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 27-1-16 of Stern Tube 14-1-16 Screw shaft and Propeller 21-1-16

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Tunnel & Deck

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Glasgow & S. Coy & John Spence & Coy

Total Heating Surface of Boilers 6016 sq ft Forced Draft fitted Yes No. and Description of Boilers 2 Single End Cylindrical

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 12-2-16 No. of Certificate 489 & 490

Can each boiler be worked separately Yes Area of fire grate in each boiler 74 1/2 sq ft No. and Description of Safety Valves to

each boiler 2 Direct Spring Area of each valve 12.56 sq 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 14 Mean dia. of boilers 15-6 Length 11-6 Material of shell plates Steel

Thickness 1/4 Range of tensile strength 31 1/2 to 35 tons the shell plates welded or flanged No Descrip. of riveting: cir. seam Lap 9 x 3

long. seam Butt Lap Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 9 Lap of plates or width of butt straps 19 1/2

Per centages of strength of longitudinal joint rivets 93.7 plate 85.0 Working pressure of shell by rules 205 lbs Size of manhole in shell 16 x 12

Size of compensating ring 10 inch No. and Description of Furnaces in each boiler 4 Brighton Material Steel Outside diameter 43 1/2

Length of plain part top 9 Thickness of plates crown 3 3/4 Description of longitudinal joint Weld No. of strengthening rings

Working pressure of furnace by the rules 181 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/2 Back 1/4 x 3/2 Top 3/2 Bottom 3/2

Pitch of stays to ditto: Sides 8 1/2 x 8 1/2 Back Various Top 8 1/2 x 8 1/2 stays are fitted with nuts or riveted heads Nuts Working pressure by rules 186 lbs

Material of stays Steel Diameter at smallest part 1 7/8 x 2 1/8 supported by each stay 7 7/8 sq Working pressure by rules 198 lbs End plates in steam space

Material Steel Thickness 1/16 Pitch of stays 19 x 15 How are stays secured Nuts & washers Working pressure by rules 183 lbs Material of stays Steel

Diameter at smallest part 5 1/4 Area supported by each stay 285 sq Working pressure by rules 215 lbs Material of Front plates at bottom Steel

Thickness 1/8 Material of Lower back plate Steel Thickness 3/8 Greatest pitch of stays 5 1/2 x 8 Working pressure of plate by rules 186 lbs

Diameter of tubes 2 1/2 Pitch of tubes 3 1/2 x 3 1/2 Material of tube plates Steel Thickness: Front 1/8 Back 1/4 Mean pitch of stays 10 1/2 x 7

Pitch across wide water spaces 3 1/2 Working pressures by rules 186 lbs Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 7 1/2 x (3/2 x 2) Length as per rule 28 1/2 Distance apart 8 1/2 Number and pitch of stays in each 2-8 1/2

Working pressure by rules 185 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

H.M.S. Pentstemon

List of Pumps

- 1 Main Mono for Pumps 14" x 26" x 15"
- 2 - Main Feed - 9 1/2" x 7" x 21"
- 1 - Auxiliary - 7" x 5" x 12"
- 2 - Fore & Aft - 10" x 8" x 18"
- 1 - Auxiliary - 4 1/2" x 5" x 12"
- 1 Centrifugal Circulating - (W. & C. Clarke & Co.)

Spare Gear

- 1 Bronze propeller
- Green two rod & trap
- Set Thrust collar
- 2 Piston rods & nuts
- 1 Valve spindle
- 36 Condenser tubes
- Connecting rod braces each end
- Set link motion braces
- Set of metallic packing, all glands
- Piston & piston valve packing rings, complete sets
- Set safety valve & springs
- 24 Boiler tubes, plain
- 2 - - - - - & tag
- Set spare gear for all Pumps.
- Set tubes & twisting condenser
- Evaporator coils & connections etc etc
- and all gear to Lloyd's Rules extra

R. F. Beveridge

IS A DONKEY BOILER FITTED? No If so, is a report now forwarded?

SPARE GEAR. State the articles supplied: See other sheet

The foregoing is a correct description,
FOR WORKMAN, CLARK & CO., LIMITED.

M. H. Bell

Manufacturer.

Dates of Survey while building { During progress of work in shops - 1915, Aug 13, 19, 23, 27, 30 Sep 2, 6, 13, 15, 17, 20, 24 and up to 7th April
During erection on board vessel - 1916
Total No. of visits 158

Is the approved plan of main boiler forwarded herewith Yes

Dates of Examination of principal parts - Cylinders 27 - Slides 8 - 15 - Covers 6 - Pistons 6 - Rods 6
Connecting rods 22 - 2 - 16 Crank shaft 11 - Thrust shaft 5 - Tunnel shafts 5 - Screw shaft 11 - 1 - 16 Propeller 7 - 3 - 16
Stern tube 15 - 12 - 15 Steam pipes tested 4 - 4 - 16 Engine and boiler seatings 4 - 1 - 16 Engines holding down bolts 1 - 1 - 16
Completion of pumping arrangements 7 - 4 - 16 Boilers fixed 7 - 3 - 16 Engines tried under steam 3 - 3 - 16
Main boiler safety valves adjusted 29 - 3 - 16 Thickness of adjusting washers 13 - 16
Material of Crank shaft Steel Identification Mark on Do. LLOYD'S Material of Thrust shaft Do Identification Mark on Do. LLOYD'S
Material of Tunnel shafts Do Identification Marks on Do. Do Material of Screw shafts Do Identification Marks on Do. Do
Material of Steam Pipes Ir. Iron Test pressure 600 lbs
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 machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules, and the approved Specification. The materials and the workmanship are of good description, and on trial in Belfast Lough the machinery worked satisfactorily, when the Horse Power required by the Specification was obtained.
In my opinion, it is eligible for record + L.M.C. 4-16 with notation Forced Draft and Electric Light

It is submitted that
this vessel is eligible for
THE RECORD + L.M.C. 4.16, E.D.

J.W.D. 20/4/16 J.W.D.

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

The amount of Entry Fee ... £ Inclusive When applied for,
Special ... £ See 19.
Donkey Boiler Fee ... £ See Report
Travelling Expenses (if any) £

Committee's Minute THU 20 APR 1916
Assigned + L.M.C. 4.16 J.D.

MACHINERY CERTIFICATE
WRITTEN.