No. 9295

REPORT ON MACHINERY.

Port of West Hartlepool — Received at London Office MON. 29 JAN 1894

No. in Reg. Book. — Survey held at W Hpl — Date, first Survey 4th Oct 93 — Last Survey 24th Jan 1894 — (Number of Visits 18)

on the Screw Steamer "Twilight" — Tons: Gross 1919, Net 1223

Master Hugh Jones — Built at W Hpl — By whom built Furness Withy & Co (W Gray & Co) — When built 1894

Engines made at W Hpl — By whom made Central Marine Engine Works — when made 1894

Boilers made at W Hpl — By whom made Central Marine Engine Works — when made 1894

Registered Horse Power 170 — Owners John Wood & Co — Port belonging to W Hpl

Nom. Horse Power as per Section 28 169

ENGINES, &c.— Description of Engines Triple Inverted Direct acting — No. of Cylinders Three

Diameter of Cylinders 20" · 31½ · 53 — Length of Stroke 36" — Revolutions per minute 65 — Diameter of Screw shaft as per rule 9.46, as fitted 9¾

Diameter of Tunnel shaft as per rule 9.0, as fitted 9¼ — Diameter of Crank shaft journals 9¾ — Diameter of Crank pin 9¾ — Size of Crank webs 13" × 6"

Diameter of screw 14'–6" — Pitch of screw Differential — No. of blades 4 — State whether moveable no — Total surface 64 sq ft

No. of Feed pumps 2 — Diameter of ditto 2½ — Stroke 24" — Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 — Diameter of ditto 3" — Stroke 24 — Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two — Sizes of Pumps 3¾ × 5½ & 8 × 8 — No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Two 2¼ & one 2½ — In Holds, &c. Five. One in Fore Peak. One in Fore Hold. One in After Hold. One in After Well and One in After Peak All 2½

No. of bilge injections 1 — sizes 5 — Connected ~~to condenser, or~~ to circulating pump — 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 None

Are all connections with the sea direct on the skin of the ship Yes except Main Injection on short neck — 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 None — How are they protected –

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

When were stern tube, propeller, screw shaft, and all connections examined ~~in dry dock~~ before launching 6·12·93 — Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes — worked from Top platform of Engine Room

BOILERS, &c.— (Letter for record S) — Total Heating Surface of Boilers 2540 sq ft

No. and Description of Boilers Two single ended multitubular — Working Pressure 160 lbs — Tested by hydraulic pressure to 320

Date of test 8·11·93 — Can each boiler be worked separately Yes — Area of fire grate in each boiler 26·3 — No. and Description of safety valves to each boiler Double spring direct — Area of each valve 7·7 — Pressure to which they are adjusted 165 lbs — Are they fitted with easing gear Yes — Smallest distance between boilers or uptakes and bunkers ~~or woodwork~~ 18" — Mean diameter of boilers 12'–0"

Length 10'–0" — Material of shell plates Steel — Thickness 31/32 — Description of riveting: circum. seams Double — long. seams Treble

Diameter of rivet holes in long. seams 1" — Pitch of rivets 6⅞ — ~~Lap of plates or~~ width of butt straps 15"

Per centages of strength of longitudinal joint rivets 87·7, plate 85·45 — Working pressure of shell by rules 160·2 — Size of manhole in ~~shell~~ End 16 × 12"

Size of compensating ring — No. and Description of Furnaces in each boiler 2 Ribbed (Brown) — Material Steel — Outside diameter 40½

Length of plain part top 7", bottom 7" — Thickness of plates crown ½", bottom ½" — Description of longitudinal joint Weld — No. of strengthening rings –

Working pressure of furnace by the rules 171·8 — Combustion chamber plates: Material Steel — Thickness: Sides 19/32 — Back 19/32 — Top 19/32 — Bottom ⅞

Pitch of stays to ditto: Sides 8⅝ — Back 8¼ × 8½ — Top 8½ × 7¼ — If stays are fitted with nuts or riveted heads Nuts — Working pressure by rules 163·7

Material of stays Steel — Diameter at smallest part 1·385 — Area supported by each stay 67·06 — Working pressure by rules 167·8 — End plates in steam space: Material Steel — Thickness 1 1/32 — Pitch of stays 16½ × 17 — How are stays secured Double nuts — Working pressure by rules 164·8 — Material of stays Steel

Diameter at smallest part 2·536 — Area supported by each stay 280·5 — Working pressure by rules 162·1 — Material of Front plates at bottom Steel

Thickness ¾ — Material of Lower back plate Steel — Thickness 1" — Greatest pitch of stays 13⅝ — Working pressure of plate by rules 186·1

Diameter of tubes 3¼ — Pitch of tubes 4½ × 4½ — Material of tube plates Steel — Thickness: Front 1 1/32 — Back ⅝ — Mean pitch of stays 9"

Pitch across wide water spaces 14¼ — Working pressures by rules 172·8 — Girders to Chamber tops: Material Steel — Depth and thickness of girder at centre 7½ × 1¼ — Length as per rule 23" — Distance apart 7¼" — Number and pitch of Stays in each one

Working pressure by rules 193·1 — Superheater or Steam chest; how connected to boiler None — 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

If not, state whether, and when, arrangements will be made?

[142. L.R.P.E. 5000—Form No. 8—12/92—Copyable 3]

HPL372-0019

DONKEY BOILER— Description Two Vertical with four cross tubes

Made at Stockton By whom made J Sudron & Co When made 1893 Where fixed Stokehold

Working pressure 80 tested by hydraulic pressure to 160 No. of Certificates 734 735 Fire grate area 20 Description of safety valves

No. of safety valves 1 on each Area of each 9·6 Pressure to which they are adjusted 85 If fitted with easing gear yes If steam from main boilers can enter the donkey boiler no Diameter of donkey boiler 6'-0" Length 12'-0" Material of shell plates Steel Thickness 13/32

Description of riveting long. seams Lap. Double. Diameter of rivet holes 13/16 Whether punched or drilled punched Pitch of rivets 2¾

Lap of plating 4 1/4" Per centage of strength of joint Rivets 79·1 Plates 70·4 Thickness of shell crown plates 17/32 Radius of do. 5'-9" No. of Stays to do. 6

Dia. of stays. 1 5/8 Diameter of furnace Top 4'-9 Bottom 5'-4½ Length of furnace 5'-3" Thickness of furnace plates 19/32 Description of joint Lap Single Thickness of furnace crown plates 9/16 Stayed by 6 1 5/8 stays Working pressure of shell by rules 81·4

Working pressure of furnace by rules 86 Diameter of uptake 14" Thickness of uptake plates 3/8" Thickness of water tubes 3/8

SPARE GEAR. State the articles supplied :— Two connecting rod bolts for top ends and two for bottom Two main bearing bolts. One set coupling bolts. One set feed pump valves and one set bilge. One set springs for HP piston. 120 bolts assorted. 6 bars iron and one propeller

The foregoing is a correct description,

FOR THE CENTRAL MARINE ENGINE WORKS, (W. Gray & Co. Ltd.)

Manufacturer. of Main Engines and Boilers Thomas Mudd Mgr.

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

The machinery of this vessel has been constructed under special survey and are of good workmanship. The boiler material has been tested in accordance with the rules. The boilers have been tested under hydraulic pressure to 320 lbs and have been examined under steam the safety valves adjusted and found satisfactory The main steam pipes have been tested by hydraulic pressure to 320 lbs. The engines have been tried under steam and found to work well. In my opinion the machinery of this vessell is eligible to have ✠L.M.C. 1·94 recorded in the Register Book.

It is submitted that this vessel is eligible for THE RECORD

+LMC. 1-94

RB 29-1-94

Certificate (if required) to be sent to MACHINERY CERTIFICATE WRITTEN.

The amount of Entry Fee..	£ 2 : 0 :	When applied for,	
Special	£ 25 : 7 :	27. 1. 1894	1/K
Donkey Boiler Fee	£ : :	When received,	
Travelling Expenses (if any)	£ : :	27. 1. 1894	

A. G. Paton

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

Committee's Minute TUES. 30 JAN 1894

+LMC 1.94

Assigned

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