

REPORT ON MACHINERY

SUNDERLAND RPT. No. 26374

No. 8817

Received at London Office WED. FEB. 3 - 1915

Date of writing Report Feb. 2, 1915 When handed in at Local Office Port of MIDDLESBRO'
 No. in Survey held at Stockton Date, First Survey September 10, 1914 Last Survey January 22, 1915
 Reg. Book. SS. BAY STATE (Number of Visits # 32) Gross 5064 Tons
 Master Trinick Built at Sunderland By whom built Sir J. Paine & Co. (Ld) When built 1915 Net 2151 Tons
 Engines made at Stockton By whom made Messrs. Blain & Co. (No. 809) when made 1915
 Boilers made at Stockton By whom made Messrs. Blain & Co. when made 1915
 Registered Horse Power 696 Owners Messrs. James Withy & Co. Port belonging to Liverpool
 Nom. Horse Power as per Section 28 696 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 20, 49, & 80" Length of Stroke 54" Revs. per minute 68 Dia. of Screw shaft 16" Material of screw shaft Eng. 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 turned yes 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 yes Length of stern bush 5'-4 3/8"
 Dia. of Tunnel shaft 14 1/2" Dia. of Crank shaft journals 15 1/2" Dia. of Crank pin 10 1/4" Size of Crank webs 3 1/4" x 10 1/2" Dia. of thrust shaft under collars 1 5/4" Dia. of screw 8-9" Pitch of Screw 10-6" No. of Blades four State whether moveable no Total surface 110 sq ft
 No. of Feed pumps 2 Diameter of ditto 9" Stroke 21" Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 4" Stroke 36" Can one be overhauled while the other is at work yes
 No. of Donkey Engines 2 Sizes of Pumps Ball 1 1/2 Feed 6 x 8 No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 4 @ 3 1/2" + 2 @ 3" in dry tank In Holds, &c. 2 @ 3 1/2" ea hold - tunnel 2 1/2" (2 lines of pipes)
 Deep tank abft. ER. Portable pipes and blank flanges fitted
 No. of Bilge Injections one size 10" Connected to condenser, or circulating pump? yes Is a separate Donkey Suction fitted in Engine room & size yes - 5"
 Are all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes Are the sluices of 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 Suctions from fore hold 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
 Dates of examination of completion of fitting of Sea Connections 7-12-14 of Stern Tube 16-12-14 Screw shaft and Propeller 16-1-15
 Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from top platform

BOILERS, &c.—(Letter for record 5) Manufacturers of Steel John Spencer & Son
 Total Heating Surface of Boilers 10410 sq ft Is Forced Draft fitted yes No. and Description of Boilers 3 S.E. Cyl.
 Working Pressure 80 lbs Tested by hydraulic pressure to 360 lbs Date of test 22-12-14 No. of Certificate 5439
 Can each boiler be worked separately yes Area of fire grate in each boiler 81.9 sq ft No. and Description of Safety Valves to each boiler One, Double Spring Area of each valve 15.90 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 2'-0" Ext. diam. of boilers 4'-4 1/2" Length 12'-0" Material of shell plates Steel
 Thickness 1 1/32" Range of tensile strength 29-32-38 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2-R. laps long. seams 2B-3R
 Diameter of rivet holes in long. seams 1 9/16" Pitch of rivets 10 1/2" Lap of plates or width of butt straps 22 1/8" x 1 1/16"
 Per centages of strength of longitudinal joint rivets 89% Working pressure of shell by rules 210 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring 0" x 1 1/32" No. and Description of Furnaces in each boiler 1 - Morrison Material Steel Outside diameter 46 1/2"
 Length of plain part top 1'-0" bottom 1'-0" Thickness of plates crown 5/8" Description of longitudinal joint weld No. of strengthening rings None
 Working pressure of furnace by the rules 200 lbs Combustion chamber plates: Material Steel Thickness: Sides 1/16" Back 5/8" Top 1/16" Bottom 1/8"
 Pitch of stays to ditto: Sides 4 3/8" x 4 1/8" Back 4 1/8" x 4 1/2" Top 8" x 4 1/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 224 lbs
 Material of stays Steel Diameter at smallest part 1 1/8" Area supported by each stay 62 sq in Working pressure by rules 28 lbs End plates in steam space: Material Steel Thickness 1 1/32" Pitch of stays 16 1/2" x 14 1/2" How are stays secured nuts 9 1/2" Working pressure by rules 225 lbs Material of stays steel
 Diameter at smallest part 4.84 sq in Area supported by each stay 344 sq in Working pressure by rules 234 lbs Material of Front plates at bottom Steel
 Thickness 1" Material of Lower back plate Steel Thickness 1 1/32" Greatest pitch of stays 14 1/2" x 14 1/2" Working pressure of plate by rules 216 lbs
 Diameter of tubes 22" Pitch of tubes 3 3/4" x 3 3/4" Material of tube plates Steel Thickness: Front 1" Back 2 1/32" Mean pitch of stays 9 1/8"
 Pitch across wide water spaces 13 3/4" Working pressures by rules 189 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8 1/2" x 2" Length as per rule 34" Distance apart 8" Number and pitch of stays in each 3 @ 4 1/2"
 Working pressure by rules 201 lbs Superheater or Steam chest; none Can the superheater be shut off and the boiler worked separately yes
 Diameter 1'-0" Length 1'-0" Thickness of shell plates 1/16" Material Steel Description of longitudinal joint weld Diam. of rivet holes 1 9/16" Pitch of rivets 10 1/2" Working pressure of shell by rules 189 lbs Diameter of flue 1'-0" Material of flue plates Steel Thickness 1/16"
 If stiffened with rings yes Distance between rings 1'-0" Working pressure by rules 189 lbs End plates: Thickness 1/16" How stayed none
 Working pressure of end plates 189 lbs Area of safety valves to superheater 15.90 sq in Are they fitted with easing gear yes

VERTICAL DONKEY BOILER—

Manufacturers of Steel

How

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 Rivets

Dia. of rivet holes Whether punched or drilled Pitch of rivets Lap of plating Per centage of strength of joint 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 Stayed by

Diameter of uptake Thickness of uptake plates Thickness of water tubes Dates of survey

SPARE GEAR. State the articles supplied:— Two connecting rod top and bottom end bolts and nuts, two main bearing bolts, 7/8 set of coupling bolts, one set of feed and bridge pump valves, iron and bolts of various sizes, one screw shaft

The foregoing is a correct description,
FOR BLAIR & CO., LIMITED.
 Glasgow Manufacturer.

Dates of Survey while building

During progress of work in shops: SECRETARY 1914 Sep. 10, 15, 18, 21, 22, 30. Oct. 1, 3, 7, 9, 12, 13, 14, 15, 17, 19, 21, 27, 28, 30. Nov. 2, 4, 6, 9, 11, 13, 18, 20, 24, 26, 30.

During erection on board vessel: Dec. 2, 4, 7, 11, 14, 22, 30 1915. Jan. 6, 8, 11, 16, 18, 19, 21, 22. Feb. 6, 10, 11, 18, 27

Total No. of visits: 46 + 6 (52)

Is the approved plan of main boiler forwarded herewith: Yes

Dates of Examination of principal parts—Cylinders 2-11-14 Slides 6-11-14 Covers 6-11-14 Pistons 10-10-14 Rods 6-11-14

Connecting rods 0-11-14 Crank shaft 3-11-14 Thrust shaft 10-10-14 Tunnel shafts 30-9-14, 2-3-9-14, 3-11-14 Screw shaft 11-12-14 Propeller 26-11-14

Stern tube 20-11-14 Steam pipes tested 18-1-15 Engine and boiler seatings 6-11-14 Engines holding down bolts 16-1-15

Completion of pumping arrangements 22-1-15 Boilers fixed 21-1-15 Engines tried under steam 22-1-15

Main boiler safety valves adjusted 22-1-15 Thickness of adjusting washers P³/₄, P²/₄, S⁵/₁₆, S⁷/₁₆, F⁵/₁₆, F⁵/₁₆

Material of Crank shaft Eng. Steel Identification Mark on Do. 44N Material of Thrust shaft Eng. Steel Identification Mark on Do. 44N

Material of Tunnel shafts Eng. Steel Identification Marks on Do. 44N Material of Screw shafts Eng. Steel Identification Marks on Do. 44N

Material of Steam Pipes L.D. lap welded & 50 Copper Test pressure 540 lbs and 360 lbs respectively

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

The engines and boilers of this vessel have been constructed under Special Survey and are of good material and workmanship: they have been fitted and secured on board in accordance with the Rules and are now in good working condition and eligible in my opinion to have the notation of $\frac{2}{2}$ L.M.C. in the Register Book, with a date when the spare gear is examined.

Sunderland 18-2-15 Survey complete. Spare gear examined, see above.

The machinery is eligible in my opinion for classification and the record L.M.C. 2, 1

It is submitted that
 this vessel is eligible for
THE RECORD + L.M.C. 2, 15.

The amount of Entry Fee..	£ 3 : 0	When applied for,
Special	£ 54 : 6	2/21 1915
Donkey Boiler Fee .. .	£ :	When received,
Travelling Expenses (if any) £	:	3 Feb 1915 12/3/15

J.M. 40
 Lewis & Davis
 Thomas Miles & W. Morrison
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute FRI. MAR. 5 - 1915

Assigned + L.M.C. 2, 15

Middleborough

Certificates (if required) to be sent to the Registrar of Shipping, the Registrar of Marine Insurance, the Registrar of Marine Loans, the Registrar of Marine Mortgages, the Registrar of Marine Pledges, the Registrar of Marine Liens, the Registrar of Marine Claims, the Registrar of Marine Damages, the Registrar of Marine Losses, the Registrar of Marine Salvages, the Registrar of Marine Wrecks, the Registrar of Marine Pollutions, the Registrar of Marine Disasters, the Registrar of Marine Accidents, the Registrar of Marine Incidents, the Registrar of Marine Emergencies, the Registrar of Marine Distress, the Registrar of Marine Assistance, the Registrar of Marine Rescue, the Registrar of Marine Recovery, the Registrar of Marine Compensation, the Registrar of Marine Indemnity, the Registrar of Marine Insurance, the Registrar of Marine Loans, the Registrar of Marine Mortgages, the Registrar of Marine Pledges, the Registrar of Marine Liens, the Registrar of Marine Claims, the Registrar of Marine Damages, the Registrar of Marine Losses, the Registrar of Marine Salvages, the Registrar of Marine Wrecks, the Registrar of Marine Pollutions, the Registrar of Marine Disasters, the Registrar of Marine Accidents, the Registrar of Marine Incidents, the Registrar of Marine Emergencies, the Registrar of Marine Distress, the Registrar of Marine Assistance, the Registrar of Marine Rescue, the Registrar of Marine Recovery, the Registrar of Marine Compensation, the Registrar of Marine Indemnity.

Port of

No. in Reg. Book

Owners

Yard No.

DESCRIPTION

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Where is D

Position of

Positions of

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circuits

If vessel is

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12

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DESCRIPTION

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Branch cables co

Branch cables co

Leads to lamps

Cargo light cable

DESCRIPTION

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Wirin

Wirin

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Are there any jo

How are the cabl

