

No. 634

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 628 No. in Register Book 1155

S.S. "Beauverton"

Makers of Engines *North Eastern Marine
Engineering Co. Ltd*
Works No. 1813

Makers of Main Boilers *North Eastern Marine
Engineering Co. Ltd*
Works No. 1813

Makers of Donkey Boiler ✓

Works No. ✓

MACHINERY.



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002506-002514-0033

No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
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Report No. No. in Register Book

Received at Head Office

24th June 1908

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the *Steel Screw Steamer*
"Beaverton."

Port of Registry

Newcastle-on-Tyne.

Registered Owners

The Merchant-Ship Co. Ltd.

Surveyor's District

Newcastle

Date of Completion of Engines

6/6/8

" " " " Main Boilers

6/6/8

" " " " Donkey

6/6/8

Trial Run at

Whitley Bay

Date

7.6.8

First Visit

1-10-07

Last Visit

7.6.8

Total Number of Visits

43.

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ENGINES.

Made by *North Eastern Marine Eng Co Ltd*
 " at *Wallsend* Works No. *1813*
 Description *Direct-acting triple expansion S.C.*
 No. of Cylinders, each Engine *3* Diars. *14-28-46* Stroke *33"*
 Cub. feet in each L.P. Cylr. *31.74* Revols. per Min. *87* I.H.P. *895*
 Pressure in L.P. Receiver at full Power *65* 2nd I.P. L.P.
 Thickness of Metal in H. P. Cylr. *1* I.P. *1 1/8"* " " *1 1/4"*
 " " " " Liner *1* " " "
 " " " " Valve Chest *1 1/8"* " *1 1/8"* " " *1 1/8"*
 Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr.? *yes*
 " " " " each Receiver? *yes*
 Number of Bolts in H.P. Cylr. Cover *18* I.P. *18* 2nd I.P. L.P. *24*
 Eff. Diar. " " " *1 1/8* " *1 1/8* " " *1 1/8*
 Pitch " " " *4.18* " *6.5* " " *6.44*
 Type of H.P. Valves (Piston or Slide) *piston* " *slide* " " *slide*
 " Valve Gear *Ordinary link motion*
 Diameter of Piston Rods (plain part) *4 1/4"* At Bottom of Thread *3.037*
 Makers " *Northumberland Forge* Material *I.S.*
 Diameter of Connecting Rods (smallest part) *4 1/2"* Material *Iron*
 Makers " " *Northumberland Forge*
 Diar. of Crosshead Gudgeons *5"* Length of Bearing *7"* Material *Iron*
 No. of Top End Bolts (each Rod) *2* Effective Diar. *2.28* Material *Steel*
 " Bot. " " *2* " *2.28* " "
 " Main Bearings *6* Lengths *8 1/4'*
 " Bolts in each *2* Effective Diar. *2.03* Material *Steel*

No. of Holding Down Bolts, each Engine *43* No. of Metal Checks *43*
 " Diar. " " " *1 1/2 & 1 1/4* Average Pitch *20'*
 Are the Engines bolted directly to the Tank Top? *yes, dry tank*
 Are the Bolts tapped through the Tank Top and fitted with Nuts inside? *yes*
 Date of Test of Tank by Water Pressure with Holding Down Bolts in place *No tank*

SKETCHES.



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SKETCHES.

SHAFTING.

Are Crank Shafts Built? *yes* No. of Lengths in each *3* Angle of Cranks *120*

Diar. of Crank Shafts by Rule ~~8.99~~ Actual *9 1/2*" Diar. in Way of Webs *10 1/4*"

Makers of *Cammell Laird & Co.* Material *1. S.*

Diar. of Crank Pins *9 1/2*" Diar. in Way of Web *9 1/2*"

Makers of *Cammell Laird & Co.* Material *1. S.*

Width across Crank Webs at Centre of Shaft *19 3/4*" Thickness *6*"

" " Crank Pins *17 3/4*" " *6*"

" " Narrowest part *17 3/4*" " *6*"

Makers of Crank Webs *Cammell Laird & Co.* Material *1. S.*

Diar. or Breadth of Keys in Crank Webs *15/8*" Length *4 1/2*"

" of Dowel Pins in Crank Pins *1*" Length *2 1/4*" Screwed or Plain *plain*

No. of Bolts in each Coupling *6* Diar. at Mid Length *2 1/4*" Diar. of Pitch Circle *14 1/2*"

Material of Coupling Bolts *1. S.*

Crank Shafts Finished by *North Eastern Marine Eng Co. Ltd.*

Greatest Distance from edge of Main Bearing to Crank Web *3/16*"

Description of Thrust Blocks *horse shoe*

Number " " Rings *5*

Diar. of Thrust Shafts by Rule ~~8.99~~ Actual (at bot. of Collars) *9 1/2*" Over Collars *15 5/8*"

" " at Forward Coupling *9 1/16*" After Coupling *9*"

No. of Thrust Collars *5* Thickness *2 1/2*" Distance apart *3*"

Thrust Shafts Forged by *Cammell Laird & Co.* Material *1. S.*

" Finished by *North Eastern Marine Eng Co. Ltd.*

No tunnel shafting

Diar. of Intermediate Shafting by Rule *8.54* Actual *8.54*

No. of Lengths, each Engine No. of Tunnel Bearings

Diar. of Bearings Length Distance apart

No. of Bolts, each Coupling ✓
 Intermediate Shafts Forged by ✓
 Finished by ✓
 No. of Propeller Shafts by Rule ~~10.09~~ ^{18.14} Actual $10\frac{1}{4}$ " At Couplings $9\frac{1}{2}$ "
 Are Propeller Shafts fitted with Continuous Brass Liners? *yes*
 Diam. over Liners $11\frac{3}{8}$ " Length of After Bearings $3' 11"$
 Of what Material are the After Bearings composed? *lignum vitae*
 Distance from After Bearing in Stern Tube to nearest ~~Forward~~ Bearing $10' 9"$
 Are the After Bearings lubricated with Oil or Sea Water? *Sea water*
 What means are adopted to prevent Sea Water entering the Stern Tubes? *none*
 Propeller Shafts Forged by *Northumberland Forge* Material *Iron*
 Finished by *North Eastern Marine Eng*
C^o Ltd Wallsend.
 No. of Propellers *One* Diam. $12' 0"$ Pitch $14' 0"$
 Blades, each Propeller *4* Fitted or Solid *fitted*
 Material of Blades *cast iron* Boss *cast iron*
 Surface, each Propeller $48' 5"$ Diam. of Propeller $16' 02"$
 Rule Diam. of Crank Shaft = $4\frac{1}{2}$ 795 ✓
 Coefficient of Displacement of Vessel at $\frac{2}{3}$ Moulded Depth 0.795 ✓

TURNSKETCHES

Diagram of Turbine
 No. of I.P. Turbines
 No. of A.S.P. Turbines
 How arranged
 Horse Power
 Material of I.P. Turbine Frame
 Material of H.P. Turbine Castings
 Lengths of Blades in H.P. Turbines
 No. of Rows of Blades of each Turbine
 Pitch of
 Material of I.M. Turbine Frame
 Material of I.P. Turbine Castings
 Lengths of Blades in I.P. Turbines
 No. of Rows of Blades of each Turbine
 Pitch of
 Material of A.S.P. Turbine Frame
 Material of A.S.P. Turbine Castings
 Lengths of Blades in A.S.P. Turbines
 No. of Rows of Blades of each Turbine
 Pitch of
 Diagram of Turbine
 No. of Turbine
 How arranged
 Horse Power
 Material of Turbine Frame
 Material of Turbine Castings
 Lengths of Blades in Turbines
 No. of Rows of Blades of each Turbine
 Pitch of
 Diagram of Turbine
 No. of Turbine
 How arranged
 Horse Power
 Material of Turbine Frame
 Material of Turbine Castings
 Lengths of Blades in Turbines
 No. of Rows of Blades of each Turbine
 Pitch of



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TURBINE ENGINES.

Type

No. of H.P. Turbines

No. of L.P. Turbines

No. of Astern „

How arranged

Revs. per Min.

Horse Power

Diar. of H.P. Turbine Drums

MATERIAL

THICKNESS OF METAL

Material of H.P. Turbine Casings

Lengths of Blades in H.P. Turbines

No. of Rows of Blades of each Length

Pitch of „ „ „

Diar. of L.P. Turbine Drums

MATERIAL

THICKNESS OF METAL

Material of L.P. Turbine Casings

Lengths of Blades in L.P. Turbines

No. of Rows of Blades of each Length

Pitch of „ „ „

Diar. of Astern Turbine Drums

MATERIAL

THICKNESS OF METAL

Material of Astern Turbine Casings

Lengths of Blades in Astern Turbines

No. of Rows of Blades of each Length

Pitch of „ „ „

Diar. of Turbine Spindles

Length of Bearing

No. of Thrust Collars on each Spindle

Thickness

Distance apart

Diar. of Spindles at Bottom of Collars

Diar. over Collars

Spindles Forged by

Material

„ Finished by

SKETCHES.



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SKETCHES.

SKETCHES.

No. of Air Pumps *one* *yes*
 Type of " *Bellevue Patent*
 No. of Air Pump Rods *2 1/2"*
 How are Air Pumps *off main engine*
 No. of Connecting Rods *one*
 " " *Bellevue*
 Dist. of Working Pump Rods *1/2"*
 How are Connecting Pumps Worked *by direct coupled engine*
 Optimal engine *Optimal engine*
 Dist. of Connecting Pump Rods from Top *1"*
 How are Connecting Pump Rods with Non-rotary Valve *yes*
 No. of Lead Pumps on each Engine *2*
 How do they pump from? *bottom*
 Discharge to? *main boiler*
 Are Spring-loaded Relief Valves fitted to each Pump? *yes*
 Can one Pump be overhauled while the others are at work? *yes*
 No. of Bilge Pumps on each Engine *2*
 How do they pump from? *all bilges*
 Discharge to? *overboard*
 Can one Pump be overhauled while the others are at work? *yes*
 No. of Bilge Pumps connected to Condensers *1*
 How are Bilge Pumps connected to Condensers? *yes*
 Are the Bilge Pumps and Pipes arranged so as to prevent inter-connection between sea and bilge? *yes*



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PUMPS, Etc

No. of Air Pumps *one* Diar. *14"* Stroke *16½"*
 Type of " *Edwardes patent*
 Diar. of Air Pump Rod *2½"* Material *gunny metal*
 How are Air Pumps Worked? *off main engines*

No. of Centrifugal Circulating Pumps *one* Maker *Watson & Co*
 " Reciprocating " " ✓ Diar. ✓ Stroke ✓
 Diar. of Circulating Pump Rods ✓ Material ✓
 How are Circulating Pumps Worked? *by direct-coupled single cylinder engine.*
 Diar. of Circulating Pump Suction from Sea *4"*
 Has each Circulating Pump a Bilge Suction with Non-return Valve? *yes* Diar. *5"*

No. of Feed Pumps on each Engine *2* Diar. *3* Stroke *16½"*
 Where do they pump from? *hotwell*
 " " discharge to? *main Boilers.*
 Are Spring-loaded Relief Valves fitted to each Pump? *yes*
 Can one Pump be overhauled while the others are at work? *yes*

No. of Bilge Pumps on each Engine *2* Diar. *3* Stroke *16½"*
 Where do they pump from? *all bilges*
 " " discharge to? *overboard*
 Can one Pump be overhauled while the others are at work? *yes*

No. of Bilge Injections connected to Condensers ✓ Diar. ✓
 Are all Bilge Suctions fitted with Roses? *yes*
 Are the Valves, Cocks, and Pipes so arranged as to prevent unintentional connection between Sea and Bilges? *yes*

Are all Sea Connections made with Valves or Cocks fitted direct to the Hull Plating? *yes*

Are they placed so as to be easily seen and accessible? *yes*

Are the Discharge Chests placed above the Deep Load Line? *yes*

Are they fitted direct to the Hull Plating and easily accessible? *yes*

Are all Blow-off Cocks or Valves fitted with Spigots through the Hull Plating and Covering Plates or Flanges on the outside? *yes*



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Main BOILERS.

Boilers made by *North Easter Marine Eng Co Ltd*
 " at *Wallsend*
 Works No. *1813*
 Date when Plan approved *26-10-07*
 Boiler Plates, Iron or Steel *Steel*
 Makers of Shell Plates *J. Spencer & Sons Newburn*
 " Internal Plates " " "
 " Furnaces *Deightons Pat. Flue Co Leeds*
 " Stay Bars *J. Spencer & Sons, Newburn*
 " Rivets *J. Miller & Co Glasgow*
 Material tested by (B.C., B.T., etc.) *B.C & B.T.*
 No. of Boilers *Two*
 Single or Double-ended *Single ended*
 No. of Furnaces, each Boiler *Two*
 Type of Furnaces *Deightons Patent corrugated*
 Approved Working Pressure *185 lbs*
 Hydraulic Test Pressure *370 lbs*
 Date of Hydraulic Test *1st Boiler 30-3-08, 2nd Boiler*
 " when Safety Valves set *14-5-08*
 Pressure on Valves *185 lbs*
 Date of Steam Accumulation Test *14-5-08*
 Max. Pressure under Accumulation Test *193 lbs*
 System of Draught *Natural*
 Can Boilers be worked separately? *yes*
 Greatest inside Diar. of Boilers *11' 9¹²/₁₆"*
 " " Length " *10' 9⁷/₈"*
 Square Feet of Heating Surface, each Boiler *1354*
 " Grate " " *39*



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Main Boilers

No. of Safety Valves, each Boiler 2
 Diar. " " " 2 1/2"
 Area " " " 4.9
 Are the Valves fitted with Easing Gear? yes
 No. of Pressure Gauges, each Boiler one & one in Eng Room
 " Water " " one
 " Test Cocks, " three
 " Salinometer Cocks, " one
 Are Water Gauge Pillars attached by Pipes to Steam and Water Spaces? no direct
 Are these Pipes connected to Boilers by Cocks or Valves? ✓
 Are Blow-off Cocks or Valves fitted on Boiler Shells? cocks
 No. of Strakes of Shell Plating in each Boiler one
 " Plates in each Strake Two
 Thickness of Shell Plates by Rule 15.65"
 " " Approved 1 3/32"
 " " in Boilers 1 3/32"
 Are the Rivet Holes Punched or Drilled? Drilled
 Are Rivets Iron or Steel? Steel
 Are the Longitudinal Seams Butt or Lap Joints? Butts
 Are the Double Butt Straps of equal width? yes
 Thickness of outside Butt Straps 1"
 " inside " 1"
 Are Longitudinal Seams Hand or Machine Riveted? machine
 Are they Single, Double, or Treble Riveted? Treble riveted
 Diar. of Rivet Holes 1 5/32"
 Pitch " 8"
 Width of Overlap 14"
 Percentage of Strength in Longitudinal Seams 85.5%



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Main Boilers

No. of Rows of Rivets in Centre Circumferential Seams ✓

Are these Seams Hand or Machine Riveted? 2 ✓

Diar. of Rivet Holes 4 ✓

Pitch " " ✓

Width of Overlap ✓ one in Dry Room

No. of Rows of Rivets in End Circumferential Seams Two

Are these Seams Hand or Machine Riveted? Front end hand

Diar. of Rivet Holes 1 5/32

Pitch " " 3 1/2

Width of Overlap 5 5/8

Size of Manholes in Shell end 16 x 12 each

Dimensions of Compensating Rings flanged in

Thickness of End Plates in Steam Space by Rule $\frac{14.2}{16}$

" " " " " Approved 1 1/8

" " " " " in Boilers 1 1/8

Pitch of Steam Space Stays 17 1/4 x 14 1/8

Eff. Diar. " " " by Rule 2.6

" " " " " Approved 14 1/4 x 14 1/8 2.784

" " " " " in Boilers " " 2.784

Material of " " " Steel

How are Stays Secured? nuts & washers in front

Diar. and Thickness of Loose Washers on End Plates 9" x 7/8"

" " Riveted " " " ✓

Width " " Doubling Strips " " " ✓

Thickness of Middle Back End Plate by Rule ✓ $\frac{14.5}{16}$

" " " " " Approved ✓ $\frac{14.5}{16}$

" " " " " in Boilers ✓ $\frac{14.5}{16}$



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Thickness of Doublings in Wide Spaces between Fireboxes ✓
 Pitch of Stays at " " " " ✓
 Eff. Diar. of Stays by Rule ✓
 " " " Approved ✓
 " " " in Boilers ✓
 Material " ✓
 Are Stays fitted with Nuts outside? ✓

Thickness of Back End Plates at Bottom by Rule $\frac{29}{32}$
 " " " " Approved "
 " " " " in Boilers "
 Pitch of Stays at Wide Spaces between Fireboxes *Three 2" stays around manhole.*
 Thickness of Doublings in " " $\frac{4}{16}$

Thickness of Front End Plates at Bottom by Rule $\frac{10.8}{16}$
 " " " " Approved 1"
 " " " " in Boilers "
 No. of Long. Stays in Spaces between Furnaces *One in each wing*
 Eff. Diar. of Stays by Rule 1.85
 " " " " Approved 1.858
 " " " " in Boilers "
 Material of " *Steel*

Thickness of Front Tube Plates by Rule $\frac{15.05}{16}$
 " " " " Approved 1"
 " " " " in Boilers "
 Pitch of Stay Tubes at Spaces between Stacks of Tubes $10 \frac{3}{4} \times 4 \frac{1}{2}$ centres
 Thickness of Doublings in " " " $\frac{11}{16}$
 " Stay Tubes at " " " $9 \frac{1}{8} \times 4 \frac{1}{2}$ & $5 \frac{1}{16}$ alternate.

Thickness of Doublings in Wide Spaces between Fireboxes ✓
 Pitch of Stays at " " " " ✓
 Eff. Diar. of Stays by Rule ✓
 " " " Approved ✓
 " " " in Boilers ✓
 Material " ✓
 Are Stays fitted with Nuts outside? ✓

Thickness of Back End Plates at Bottom by Rule $\frac{29}{32}$
 " " " " Approved "
 " " " " in Boilers "
 Pitch of Stays at Wide Spaces between Fireboxes *Three 2" stays around manhole.*
 Thickness of Doublings in " " $\frac{4}{16}$

Thickness of Front End Plates at Bottom by Rule $\frac{10.8}{16}$
 " " " " Approved 1"
 " " " " in Boilers "
 No. of Long. Stays in Spaces between Furnaces *One in each wing*
 Eff. Diar. of Stays by Rule 1.85
 " " " " Approved 1.858
 " " " " in Boilers "
 Material of " *Steel*

Thickness of Front Tube Plates by Rule $\frac{15.05}{16}$
 " " " " Approved 1"
 " " " " in Boilers "
 Pitch of Stay Tubes at Spaces between Stacks of Tubes $10 \frac{3}{4} \times 4 \frac{1}{2}$ centres
 Thickness of Doublings in " " " $\frac{11}{16}$
 " Stay Tubes at " " " $9 \frac{1}{8} \times 4 \frac{1}{2}$ & $5 \frac{1}{16}$ alternate.



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Are Stay Tubes fitted with Nuts at Front End?

no

Thickness of Back Tube Plates by Rule

10.7
16

Approved

3/4"

in Boilers

Pitch of Stay Tubes in Back Tube Plates

9" x 9"
4 1/2" x 4 1/2"

Plain

Thickness of Stay Tubes

3/8" & 5/16"

Plain

8 B.W.G

External Diar. of Tubes

3 1/4"

Material

Iron

Thickness of Furnace Plates by Rule

8.65
16

Approved

9/16"

in Boilers

Smallest outside Diar. of Furnaces

3' 5 7/8"

Length between Tube Plates

4' 4 1/4"

Width of Combustion Chambers (Front to Back)

30"

Thickness of Tops, by Rule

10.9
16

Approved

11
16

in Boilers

Pitch of Screwed Stays in C.C. Tops

9 1/4" x 9"

Diar. by Rule

1.574"

Approved

1 3/4" 1.6"

in Boilers

1.6"

Material

Steel

Thickness of Combustion Chamber Sides by Rule

10.9
16

Thickness of Combustion Chamber Sides Approved

in Boilers

Pitch of Screwed Stays in C.C. Sides

by Rule

Approved

in Boilers

Material

Thickness of Combustion Chamber Sides by Rule

Approved

in Boilers

Pitch of Screwed Stays in C.C. Sides

by Rule

Approved

in Boilers

Material

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber

Centre

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Stay Tubes in each plate

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Thickness of Combustion Chamber Sides Approved $11 \frac{1}{16}$

" " " " in Boilers "

Pitch of Screwed Stays in C.C. Sides $9 \frac{1}{4} \times 9$

Eff. Diar. " " by Rule 1.54

" " " Approved $1 \frac{3}{4} \times 1.6$

" " " in Boilers "

Material " " *Steel*

Thickness of Combustion Chamber Backs by Rule $10.95 \frac{1}{16}$

" " " " Approved $11 \frac{1}{16}$

" " " " in Boilers "

Pitch of Screwed Stays in C.C. Backs $10 \times 8 \frac{1}{4}$

Eff. Diar. " " by Rule $1.5 \times 1.72 - 1.85$

" " " Approved $2 \times 1 \frac{7}{8} \times 1 \frac{3}{4}$

" " " in Boilers $1.85 \times 1.73 \times 1.6$

Material " " *Steel*

Are all Screwed Stays fitted with Nuts inside C.C. *yes*

Thickness of Combustion Chamber Bottoms $1 \frac{1}{4}$

No. of Girders over each Wing Chamber *Five*

" " " Centre "

Depth and Thickness of Girders $8 \frac{1}{2} \times 3 \frac{1}{4}$ double

Material of Girders *Steel*

No. of Stays in each *Two*

No. of Stay Tubes, each Boiler *64*

" " Plain " " *108*

Size of lower Manholes 16×12

If the Donkey Boilers are Vertical the following particulars should be stated in addition to those on

previous pages applicable to such Boilers:—

Type of Boiler

Height of Boiler Crown above Fire Grate

Are Boiler Crowns Flat or Dished?

Thickness of Plates

Positioning of Seams in Boiler Crowns

Time of Blast Boiler

Height of Firebox Crown above Fire Grate

Are Firebox Crowns Flat or Dished?

Thickness of Plates

External Radius of Dished Crowns

Material

Effective Diar.

No. of Crown Stays

Height of Firebox at Top

Boilers

External Diar. of Firebox at Top

Are they

No. of Water Tubes

Material of Water Tubes

Material

Boiler

No. of Screwed Stays in Firebox Sides

Outlets

Are they fitted with Nuts inside?

SUPERHEATERS

Description of Superheaters

Where situated

Which Boilers are connected to Superheaters?

Can Superheaters be shut off while Boilers are working?

No. of Safety Valves on each Boiler



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VERTICAL DONKEY BOILERS. ✓

If the Donkey Boilers are Vertical the following particulars should be stated in addition to those on previous Pages applicable to such Boilers:—

Type of Boilers

Height of Boiler Crown above Fire Grate

Are Boiler Crowns Flat or Dished?

Internal Radius of Dished Ends

Thickness of Plates

Description of Seams in Boiler Crowns

Diar. of Rivet Holes

Pitch

Width of Overlap

Height of Firebox Crowns above Fire Grate

Are Firebox Crowns Flat or Dished?

External Radius of Dished Crowns

Thickness of Plates

No. of Crown Stays

Effective Diar.

Material

External Diar. of Firebox at Top

Bottom

Thickness of Plates

No. of Water Tubes

Int. Diar.

" "

Material of Water Tubes

No. of Screwed Stays in Firebox Sides

Eff. Diar.

Material

Are they fitted with Nuts inside?

Outside?

SUPERHEATERS. ✓

Description of Superheaters

Where situated

Which Boilers are connected to Superheaters?

Can Superheaters be shut off while Boilers are working?

No. of Safety Valves on Superheaters

Diar.

Area

Are " " fitted with Easing Gear?

Date of Hydraulic Test

Test Pressure

Date when Safety Valves set

Pressure on Valves

SKETCHES. I AM

2
 8 1/4" 3/4"
 10-30X4-8-07
 400 lbs 200 lbs

2
 8 1/4" 3/4"
 10-30X4-8-07
 400 lbs 200 lbs

REFRIGERATORS

No. of Machines
 Description

When any part of the Vessel is to be used for the purpose of refrigeration the following particulars should be stated:—

Total (Gross Capacity of Refrigerated Space
 Nature, Construction, Thickness, &c., of Insulation
 Location of Pipes, &c., well covered and protected from risk of damage?
 Are all Pipe Suction, Return, and Air Pipes in insulated spaces properly insulated?
 Are Thermometer Tubes so arranged that Water cannot enter and freeze in the Tubes?
 Are Relief Valves fitted on any of the Bulbheads of insulated spaces?
 Are lines fitted with Non-return Valves?
 Are they always accessible?



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MAIN STEAM PIPES.

| | | | | |
|-----------------------------|-------------|-------------|--|--|
| No. of Lengths | 2 | 2 | | |
| Material | Copper | Copper | | |
| Brazed, Welded, or Seamless | Solid drawn | Solid drawn | | |
| Internal Diam. | 3 3/4" | 3 3/4" | | |
| Thickness | 4 w.g. | 6 w.g. | | |
| How are Flanges Secured? | Brazed | Brazed | | |
| Date of Hydraulic Test | 13-3-08 | 4-5-08 | | |
| Test Pressure | 400 lbs | 400 lbs | | |

REFRIGERATORS. ✓

No. of Machines Makers

Description

When any part of the Vessel is to be used for the Carriage of Refrigerated Cargo the following particulars should be stated:—

Total Cubic Capacity of Refrigerated Spaces

Nature, Construction, Thickness, &c., of Insulation

SUPERHEATERS

- Are all Pipes, Air Trunks, &c., well secured and protected from risk of damage?
- Are all Bilge Suction, Sounding, and Air Pipes in Insulated Spaces properly insulated?
- Are Thermometer Tubes so arranged that Water cannot enter and freeze in the Tubes?
- Are Sluice Valves fitted on any of the Bulkheads of Insulated Spaces?
- Are these fitted with Brass Non-return Valves?
- Are they always accessible?
- Are the Bilges and Bilge Rose Boxes always accessible?
- Are the Steam Suctions to Bilges fitted with Non-return Valves?

Is the Machine Room effectively separated from Insulated Spaces?

" " properly Ventilated and Drained?

No. of Steam Cylinders, each Machine

Diars.

" Compressors, "

Diam. of Crank Shafts

No. of Cranks

Give particulars of Pumps in connection with Refrigerating Plant, and state whether worked by Refrigerating Machines or independently

- Are Brine and other Regulating Valves placed so as to be accessible without entering the Insulated Spaces?
- Date of Test under Working Conditions
- Fall of Temperature in Insulated Spaces
- Time required to obtain this Result
- Articles of Spare Gear for Refrigerating Plant carried on board



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SKETCHES.

ELECTRIC LIGHTING.

Installation Fitted by *Messrs Siemens Bros. Newcastle*
 No. and Description of Dynamos *One compound wound*
 Makers of Dynamos *Messrs Siemens Bros*
 Capacity " Amperes, at *110* Volts, *575* Revols. per Min.
 Current Alternating or Continuous *continuous*
 Position of Dynamos *Top platform in Engine Room*
 " Main Switch Board " " " "
 No. of Circuits to which Switches are provided on Main Switch Board *12*

Particulars of these Circuits:—

| No. of Circuit. | Name of Circuit. | Number of Lights. | Candle Power. | Current Required. Amps. | Size of Conductor. | Current Density. | Conductivity of Conductor. | Insulation Resistance per Mile. |
|-----------------|-------------------------|-------------------|---------------|-------------------------|--------------------|------------------|----------------------------|---------------------------------|
| 1 | <i>Stale Rooms</i> | 13 | 16 | 6.76 | 7/20 | 9650 | 100% | 600 meg |
| 2 | <i>Newcastle</i> | 10 | " | 5.2 | " | 7450 | " | " |
| 3 | <i>Navigation</i> | 6 | " | 3.12 | " | 4460 | " | " |
| 4 | <i>Dining Room</i> | 14 | " | 7.28 | " | 10400 | " | " |
| 5 | <i>Engineers Berths</i> | 9 | " | 4.68 | " | 6700 | " | " |
| 6 | <i>Deck Lights</i> | 14 | " | 7.28 | " | 10400 | " | " |
| 7 | <i>Forward Cargo</i> | 8 | " | 4.16 | " | 5950 | " | " |
| 8 | <i>Mid "</i> | 8 | " | 4.16 | " | " | " | " |
| 9 | <i>Aft "</i> | 8 | " | 4.16 | " | " | " | " |
| 10 | <i>Eng Room</i> | 12 | " | 6.24 | " | 8900 | " | " |
| 11 | <i>Stokehold</i> | 10 | " | 5.2 | " | 7450 | " | " |
| 12 | <i>Spare</i> | - | - | - | - | - | - | - |

Total No. of Lights *112* No. of Motors driving Fans, &c. *✓* No. of Heaters *✓*
 Current required for Motors and Heaters *✓*

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Positions of Auxiliary Switch Boards, with No. of Switches on each

No 1 in Forecastle 6 DP. No 2 in Forecastle Hall
 5 D.P. No 3 in Pilot House 6 DP. No 4 in
 Painty 5 DP. No 6 in after deck house 5 DP.
 No 7 direct No 8 Direct, No 9 direct
 No 10 in Engine Room 4 DP. No 11 in
 Engine Room 4 DP.

| Location | Number of Switches | Other Details |
|------------------|--------------------|---------------|
| Forecastle | 6 DP | |
| Forecastle Hall | 5 D.P. | |
| Pilot House | 6 DP | |
| Painty | 5 DP | |
| after deck house | 5 DP | |
| Engine Room | 4 DP | |
| Engine Room | 4 DP | |

| Question | Answer |
|--|--------------------------|
| Are Cut-outs fitted as follows?— | |
| On Main Switch Board, to Cables of Main Circuits | yes |
| On Aux. " " each Auxiliary Circuit | yes |
| Wherever a Cable is reduced in size | yes |
| To each Lamp Circuit | yes |
| To both Flow and Return Wires of all Circuits when the Double-Wire System is adopted | yes |
| Are the Fuses of Standard Sizes? | yes |
| Are all Switches and Cut-outs constructed of Non-inflammable Material? | yes |
| Are they placed so as to be always and easily accessible? | yes |
| Smallest Single Wire used, Nb. 18 S.W.G., Largest, No. 18 S.W.G. | |
| How are Conductors in Engine and Boiler Spaces protected? | insulated rubber & tubes |
| " " Saloons, State Rooms, &c., " ? " | " & lead covers |
| What special protection is provided in the following cases?— | |
| (1) Conductors exposed to Heat or Damp | Insulated rubber & tubes |
| (2) " " passing through Bunkers or Cargo Spaces | " " " |
| (3) " " Deck Beams or Bulkheads | lead bushes |

Are all Joints in Cables properly soldered and thoroughly Insulated so that the efficiency of the Cables is unimpaired? *no joints*

Are all Joints in accessible positions, none being made in Bunkers or Cargo Spaces? *no joints*

Are all Hull Connections for Single-Wire Systems made with Screws of large Surface? *double wire*

Are the Dynamos, Motors, Main and Branch Cables, so placed that the Compasses are not injuriously affected by them? *yes*

Have Tests been made to prove that this condition has been satisfactorily fulfilled? *yes*

Has the Insulation Resistance over the whole system been tested? *yes*

What does the Resistance amount to? *500,000* Ohms.

Is the Installation supplied with a Voltmeter? *yes*

" " " an Ampere Meter? *yes*

Date of Trial of complete Installation *3/6/08* Duration of Trial *6 hours*



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EVAPORATORS.

No. Type Tons per Da
 Makers
 Working Pressure Test Pressure Date of Test
 Date of Test of Safety Valves under Steam

FEED WATER HEATERS.

No. *one* Type *Vertical Heater & cleaner*
 Makers *North Eastern Marine Eng Co Ltd*
 Working Pressure *185 lbs* Test Pressure *400* Date of Test *25/2/08*

DONKEY

No. of Donkeys *One Ballast Donkey*
 Type *Vertical*
 Makers *Lamont & Co*
 Single or Duplex *Duplex*
 " Double-Acting *Double acting*
 Diam. of Steam Cylinders *9"*
 " Pumps *10"*
 Stroke of " *10"*
 Where do they pump from? *Tank, Sea & bilges*
 Where do they discharge to? *Condenser & overboard*

Capacity, Tons per Hour of Ballast Donkey

Diam. of Pipe required by Rule for

FEED WATER FILTERS.

No. *3* Type *✓* Size *8"*
 Makers *one*
 Working Pressure Test Pressure Date of Test

FORCED DRAUGHT FANS.

No. of Fans *24* Diam. *✓* Revols. per min.
 How are Fans driven?

PUMPS.

One Feed Donkey *One Sanitary Pump*
Horizontal *Horizontal*
Worthington & Co *Worthington & Co*
Duplex *Duplex*
Double acting *Double acting*
9" *4 1/2"*
5 1/4" *2 3/4"*
10" *4"*
Sea, hotwell & Boilers *Sea*

Boilers deck & ash ejector

Sanitary

largest Ballast Tank

Velocity of Water in Pipe



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SPARE GEAR.

| | | | |
|---------------------------|---|---------------------------------|---------|
| No. of Top End Bolts | 2 | No. of Bot. End Bolts | 2 |
| „ Main Bearing Bolts | 2 | „ Coupling Bolts | One set |
| „ Cylr. Cover Bolts Studs | 6 | „ Valve Chest Cover Bolts Studs | 6 |
| „ Feed Pump Valves | 2 | „ Bilge Pump Valves | 2 |
| „ Safety Valve Springs | 2 | „ Fire Bars | 54 |
| „ Piston Rings | ✓ | „ Junk Ring Bolts Studs | ✓ |
| „ Piston Rods | ✓ | „ Connecting Rods | ✓ |
| „ Valve Spindles | ✓ | „ Air Pump „ | ✓ |
| „ Air Pump Valves | ✓ | „ „ „ Buckets | ✓ |
| „ Crank Pin Bushes | ✓ | „ Crosshead Bushes | ✓ |
| „ Crank Shafts | ✓ | „ Propeller Shafts | ✓ |
| „ Propellers | ✓ | „ „ „ Blades | 2 |
| „ Boiler Tubes | ✓ | „ Condenser Tubes | 6 |

OTHER ARTICLES OF SPARE GEAR:-

*a quantity of plate & bar iron
a number of bolts nuts & studs*

GENERAL CONSTRUCTION.

Have all the Requirements under Sections 31 and 32 of the Rules been complied with? *yes*

If not, give details of the points of difference, and state when these were sanctioned by the Chief

Surveyor ✓

Are the Steam Pumping Arrangements in accordance with the approved Plan? *yes*

If not, state in what respects they differ and when such differences were sanctioned by the Chief

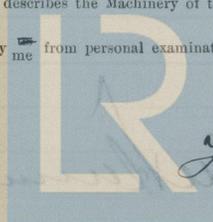
Surveyor ✓

Are the Materials used in the Construction of Engines and Boilers, so far as could be seen, sound and trustworthy? *yes*

Is the Workmanship throughout thoroughly satisfactory? *yes*

The above correctly describes the Machinery of the S.S. "Beaverton"

as ascertained by me from personal examination.



Thos. George

Engineer Surveyor to the British Corporation for the
Survey and Registry of Shipping.

Fees—

MAIN BOILERS.

H.S. 2708 Sq. ft. 13 0 0

G.S. 48 " 6 : : 0

DONKEY BOILERS.

H.S. Sq. ft. : : 574

G.S. " : : 0

£ : : 0

ENGINES.

L.P.C. Cub. ft. 10 : 0 : 0

£ : : 0

Testing, &c. : : 0

£ : : 0

Expenses ... : : 6

Total ... £ 23 : 0 : 0

It is submitted that this Report be approved,

Robert King
Chief Surveyor.

Approved by the Committee,

for the class of M.B.S.*
on 24th June 1908.

Fees applied for 17-6-8

Fees paid

Robert King
Secretary.



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2408 13 0 0
 48
 23 0 0

It is understood that this Register is approved.

Robert King

approved by the Committee for the Release of 8155
on 26th June 1955

Robert King



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