

No. 660

THE BRITISH CORPORATION FOR THE SURVEY

AND

REGISTRY OF SHIPPING.

N/N Laure Pattison

Report No. 622 No. in Register Book 1150

BALLYHOLME BAY.

S.S. "ODLAND"

Makers of Engines N. & J. Marine Eng. Co Ltd

Works No. 1825

Makers of Main Boilers N. & J. Marine Eng. Co. Ltd

Works No. 1825

Makers of Donkey Boiler Blake Boiler Wagon Eng Co Ltd

Works No. 3089

MACHINERY.

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RELIANT Lloyd's Register Foundation

W/085-0169

No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING

Report No. 622 No. in Register Book 1150

Received at Head Office

10th June 1888

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the

Steel Screw Steamer
"Odland"

Port of Registry

Christiania

Registered Owners

Dampskibsaktieselskabet
"Odland"

Surveyor's District

West and East.

Date of Completion of Engines

5. 08

" " " " Main Boilers

5. 08

" " " " Donkey

5. 08

Trial Run at

North Sea

Date

9-5-08

First Visit

27-1-08

Last Visit

7-5-08

Total Number of Visits

78

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ENGINES.

Made by *North Eastern Marine Eng. Co. Ltd*
 " at *Lunderland*
 Description *Triple expansion, surface condensing.*
 No. of Cylinders, each Engine *3* Diars. *17½ - 29 - 48"* Stroke *33"*
 Cub. feet in each L.P. Cylr. *34.5* Revols. per Min. *75* I.H.P.
 Pressure in I.P. Receiver at full Power 2nd I.P. L.P.
 Thickness of Metal in H. P. Cylr. *1½"* I.P. *1½"* " *✓* " *1½"*
 " " " " Liner *1"* " *5"* " *✓* " *7"*
 " " " " Valve Chest *1"* " *5"* " *✓* " *7"*
 Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr.? *Yes*
 " " " " each Receiver? *J.P. L.P.*
 Number of ~~Bolts~~ Studs in H.P. Cylr. Cover *14* I.P. *18* 2nd I.P. *✓* L.P. *24*
 Eff. Diar. " " " *18"* " *18"* " *✓* " *18"*
 Pitch " " " *4¾"* " *5½"* " *✓* " *6½"*
 Type of H.P. Valves (Piston or Slide) *Piston* " *Slide* " *Slide*
 " Valve Gear *Stephenson's link motion*
 Diameter of Piston Rods (plain part) *4¼"* At Bottom of Thread *3.287"*
 Makers " *Northumberland Forge* Material *Steel*
 Diameter of Connecting Rods (smallest part) *4¼"* Material *Iron*
 Makers " *Northumberland Forge*
 Diar. of Crosshead Gudgeons *5"* Length of Bearing *7½"* Material *Iron*
 No. of Top End Bolts (each Rod) *2* Effective Diar. *2.287"* Material *Iron*
 " Bot. " " *2* " *2.287* " "
 " Main Bearings *6* Lengths *9"*
 " Bolts in each *2* Effective Diar. *2"* Material *Iron*

No. of Holding Down Bolts, each Engine *32* No. of Metal Chocks *none*
 Eff. Diar. " " " *1½"* Average Pitch *22"*
 Are the Engines bolted directly to the Tank Top? *Yes*
 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 *5-5-08*

SKETCHES.



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No. of Bolts, each Coupling

Diar. at Mid Length

Diar. of Pitch Circle

Intermediate Shafts Forged by

Material

Finished by

Diar. of Propeller Shafts by Rule

10.19

Actual

10 1/4"

At Couplings

9 1/8"

Are Propeller Shafts fitted with Continuous Brass Liners?

Yes

Diar. over Liners

11 3/8"

Length of After Bearings

Of what Material are the After Bearings composed?

Brass and Lignum vitae

Distance from After Bearing in Stern Tube to nearest Tunnel Bearing

4'-0" to gland

Are the After Bearings lubricated with Oil or Sea Water?

Sea water

What means are adopted to prevent Sea Water entering the Stern Tubes?

✓

Propeller Shafts Forged by

Northumberland Forge

Material

Iron

Finished by

North Eastern Marine Eng Co

Sunderland.

No. of Propellers

One

Diar.

12'-6"

Pitch

14'-0"

Blades, each Propeller

4

Fitted or Solid

Solid

Material of Blades

and

Boss

Cast iron

Surface, each Propeller

50 #

Diar. of Propeller

Rule Diar. of Crank Shaft =

16.46

Coefficient of Displacement of Vessel at 1/2 Moulded Depth

.767.

R

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PUMPS, ETC

No. of Air Pumps *one* Diar. *15"* Stroke *15"*
 Type of *Edwards*
 Diar. of Air Pump Rod *2 1/4"* Material *Muntz metal*
 How are Air Pumps Worked? *Lever*

No. of Centrifugal Circulating Pumps *✓* Maker *✓*
 " Reciprocating " *one* Diar. *9"* Stroke *15"*
 Diar. of Circulating Pump Rods Material *Muntz metal*
 How are Circulating Pumps Worked? *Lever*

Diar. of Circulating Pump Suction from Sea *5"*
 Has each Circulating Pump a Bilge Suction with Non-return Valve? *Yes* Diar. *4 1/2"*

No. of Feed Pumps on each Engine *Two* Diar. *2 3/4"* Stroke *15"*
 Where do they pump from? *Holwell*
 " " discharge to? *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 *15"*
 Where do they pump from? *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*

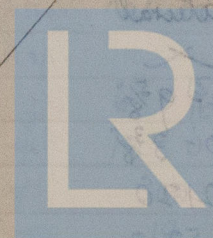
Are all Sea Connections made with Valves or Cocks fitted direct to the Hull Plating? *Yes*

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 *N. & Marine Eng. Co. Ltd*
 " at *Sunderland*
 Works No. *1825*
 Date when Plan approved *18/12/07*
 Boiler Plates, Iron or Steel *Steel*
 Makers of Shell Plates *Spencer Newburn*
 " Internal Plates *do*
 " Furnaces *Brighton*
 " Stay Bars *Spencer Newburn*
 " Rivets *Millar*
 Material tested by (B.C., B.T., etc.) *B. C.*
 No. of Boilers *One*
 Single or Double-ended *Single*
 No. of Furnaces, each Boiler *3*
 Type of Furnaces *Brightons*
 Approved Working Pressure *180 lbs*
 Hydraulic Test Pressure *360 lbs*
 Date of Hydraulic Test *3-4-08*
 " when Safety Valves set *5-5-08*
 Pressure on Valves *185 lbs*
 Date of Steam Accumulation Test *5-5-08*
 Max. Pressure under Accumulation Test *195 lbs*
 System of Draught *Natural*
 Can Boilers be worked separately? *✓*
 Greatest inside Diam. of Boilers *14'-9⁵/₈"*
 " " Length " *10'-3³/₈"*
 Square Feet of Heating Surface, each Boiler *2120*
 " Grate " " *52.2.*

- *Donkey Boiler -*
Blake Boiler Wagon Long. Co. Ltd
Darlington

3089

25-2-08

Steel

Spencer Newburn

do

Blake Co.

✓
Millar

B. C.

One

Vertical

One

Vertical

100 lbs

200 lbs

16-4-08

7-5-08

101 lbs

7-5-08

102 lbs

Natural

6'-0⁵/₁₆"

12'-0" overall

300

19

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No. of Safety Valves, each Boiler

Diar. " " "

Area " " "

Are the Valves fitted with Easing Gear?

No. of Pressure Gauges, each Boiler

" Water " "

" Test Cocks, " "

" Salinometer Cocks, " "

Are Water Gauge Pillars attached by Pipes to Steam and Water Spaces?

Are these Pipes connected to Boilers by Cocks or Valves?

Are Blow-off Cocks or Valves fitted on Boiler Shells?

No. of Strakes of Shell Plating in each Boiler

" Plates in each Strake

Thickness of Shell Plates by Rule

" " Approved

" " in Boilers

Are the Rivet Holes Punched or Drilled?

Are Rivets Iron or Steel?

Are the Longitudinal Seams Butt or Lap Joints?

Are the Double Butt Straps of equal width?

Thickness of outside Butt Straps

" inside " "

Are Longitudinal Seams Hand or Machine Riveted?

Are they Single, Double, or Treble Riveted?

Diar. of Rivet Holes

Pitch " "

Width of Overlap

Percentage of Strength in Longitudinal Seams

2

2 3/4"

11.87 sq"

Yes

one

one

2 on shell

one

Yes

Yes

Yes.

One

Two

18 98.

1 3/16"

1 3/16"

Drilled

Steel

Butt

Yes

1"

1"

Machine

Treble

1 5/16"

9 3/8"

19 5/8 straps

85

2

2"

6.28 sq"

Yes

one

one

2 on

one

No

✓

Yes

Two

One and two

15"

32"

15"

32"

Drilled

Steel

Lap

✓

✓

✓

Machine

Double

13"

2 3/4"

4 1/4"

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No. of Rows of Rivets in Centre Circumferential Seams ✓

Are these Seams Hand or Machine Riveted? ✓

Diar. of Rivet Holes ✓

Pitch " ✓

Width of Overlap ✓

No. of Rows of Rivets in End Circumferential Seams Two

Are these Seams Hand or Machine Riveted? Back, machine Front. hand

Diar. of Rivet Holes $1\frac{5}{16}$ "Pitch " $3\frac{3}{4}$ "Width of Overlap $6\frac{1}{8}$ "Size of Manholes in Shell $16" \times 12"$ Dimensions of Compensating Rings $30" \times 26" \times 1\frac{3}{16}"$ Thickness of End Plates in Steam Space by Rule $2\frac{1}{16}$ "" " " " " Approved $1\frac{5}{16}"$ " " " " " in Boilers $1\frac{5}{16}"$ Pitch of Steam Space Stays $22" \times 70\frac{3}{8}"$ Eff. Diar. " " " by Rule 3.13 " " " " " Approved 3.287 " " " " " in Boilers 3.287

Material of " " " Steel

How are Stays Secured? Double nuts, washers outside

Diar. and Thickness of Loose Washers on End Plates $10\frac{1}{2}" \times \frac{7}{8}"$

" " Riveted " " " ✓

Width " " Doubling Strips " " " ✓

Thickness of Middle Back End Plate by Rule $14\frac{5}{16}$ "

" " " " " Approved ✓

" " " " " in Boilers ✓

one machine

 $1\frac{3}{16}"$ $2\frac{1}{4}"$ $2\frac{1}{2}"$

one

machine

 $1\frac{3}{16}"$ $2\frac{1}{4}"$ $2\frac{1}{2}"$ $16" \times 12"$ $28" \times 24" \times \frac{5}{8}"$ 

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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

" " " " " Approved

" " " " " in Boilers

Pitch of Stays at Wide Spaces between Fireboxes

Thickness of Doublings in " "

Thickness of Front End Plates at Bottom by Rule

" " " " " Approved

" " " " " in Boilers

No. of Long. Stays in Spaces between Furnaces

Eff. Diar. of Stays by Rule

" " " " " Approved

" " " " " in Boilers

Material of "

Thickness of Front Tube Plates by Rule

" " " " " Approved

" " " " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

Thickness of Doublings in " " "

" Stay Tubes at " " "

$$\frac{14.6}{16}$$

$$\frac{29}{32}$$

$$\frac{29}{32}$$

$$14\frac{1}{8} \times 10\frac{7}{8}$$

$$\frac{12.8}{16}$$

$$\frac{13}{16}$$

$$\frac{13}{16}$$

One between each

$$2.03$$

$$2.037$$

$$2.037$$

Steel

$$\frac{11.1}{16}$$

$$\frac{13}{16}$$

$$\frac{13}{16}$$

$$14\frac{1}{2} \times 13\frac{1}{2} \times 9$$

$$\frac{5}{8}$$

$$\frac{5}{8}$$

$$\frac{5}{16}$$

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Are Stay Tubes fitted with Nuts at Front End?

no

Thickness of Back Tube Plates by Rule

" " " Approved

" " " in Boilers

Pitch of Stay Tubes in Back Tube Plates

" Plain "

Thickness of Stay Tubes

" Plain "

External Diar. of Tubes

Material " "

11.8
16

13
16
13
16

13½" and 9" x 9"

4½" x 4½"

¼"

8 n. G.

3¼"

Wrot. iron.

Thickness of Furnace Plates by Rule

" " " Approved

" " " in Boiler

Smallest outside Diar. of Furnaces

Length between Tube Plates

8.49
16

17
32
17
32

3'-5½"

6'-8" over. plates

Width of Combustion Chambers (Front to Back)

Thickness of " " " Tops, by Rule,

" " " " Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Tops

Eff. Diar. " " by Rule

" " " Approved

" " " in Boilers

Material " "

2'-10½"

12
16

¾"

¾"

11" x 9½"

1.73

1.758

1.758

Steel

12
16

Thickness of Combustion Chamber Sides by Rule

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Thickness of Combustion Chamber Sides Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Sides

Eff. Diar. " " by Rule

" " " Approved

" " " in Boilers

Material " "

Thickness of Combustion Chamber Backs by Rule

" " " " Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Backs

Eff. Diar. " " by Rule

" " " Approved

" " " in Boilers

Material " "

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

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, each Boiler

" " Plain " " "

Size of lower Manholes

$\frac{3}{4}$ "
 $\frac{3}{4}$ "

11" x 9 $\frac{1}{2}$ "

1.66

1.758"

1.758"

Steel

12.45 -
16

$\frac{25}{32}$ "

$\frac{25}{32}$ "

$\frac{25}{32}$ "

10 $\frac{7}{8}$ " x 10 $\frac{1}{2}$ "

1.73

1.758"

1.758"

Steel

Yes
 $\frac{7}{8}$ "

3

2

8 $\frac{1}{4}$ " x 2@1"

Steel

2

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84

208

16" x 12"

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 *Blake New Type*

Height of Boiler Crown above Fire Grate

Are Boiler Crowns Flat or Dished? *Dished*

Internal Radius of Dished Ends *3'-0"* Thickness of Plates *$\frac{15}{32}$ "*

Description of Seams in Boiler Crowns *Lap I.R.*

Diar. of Rivet Holes *$\frac{3}{16}$ "* Pitch *$2\frac{1}{4}$ "* Width of Overlap *$2\frac{1}{2}$ "*

Height of Firebox Crowns above Fire Grate

Are Firebox Crowns Flat or Dished? *Dished*

External Radius of Dished Crowns *3'-9"* Thickness of Plates *$\frac{11}{16}$ "*

No. of Crown Stays ☒ Effective Diar. ☒ Material ☒

External Diar. of Firebox at Top *3'-0"* Bottom Thickness of Plates *$\frac{9}{16}$ " $\frac{19}{32}$ "*

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

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MAIN STEAM PIPES.

No. of Lengths

2

Material

Copper

Brazed, Welded, or Seamless

Seamless

Internal Diam.

4½"

Thickness

6 w. G.

How are Flanges Secured?

Brazed

Date of Hydraulic Test

29-4-08

Test Pressure

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

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?

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EVAPORATORS.

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

FEED WATER HEATERS.

No.	Type
Makers	
Working Pressure	Test Pressure
Date of Test	

DONKEY

No. of Donkeys

Type

Makers

Single or Duplex

Double-Acting

Diar. of Steam Cylinders

Pumps

Stroke of

Where do they pump from?

Where do they discharge to?

Capacity, Tons per Hour of Ballast Donkey

Ballast
One
Horizontal
N. E. Marine
Duplex
Double
6"
7"
9"
Tanks, Sea
Bilges (main + direct)
Condensers
Overboard

Diar. of Pipe required by Rule for

FEED WATER FILTERS.

No.	Type	Size
Makers		
Working Pressure	Test Pressure	Date of Test

FORCED DRAUGHT FANS.

No. of Fans	Diar.	Revs. per min.
How are Fans driven?		

PUMPS.

Feed

One

Horizontal

N. E. Marine

Duplex

Double

5 1/2"

3 1/2"

5"

Sea, Boilers,
Hotwell, Tanks

Boilers

Deck.

Overboard.

4"

largest Ballast Tank

D. B. Feed

One

Horizontal

Tangye

Duplex

Double

4"

2 1/2"

4"

Sea

Donkey Boiler

Velocity of Water in Pipe

668 ft per min

SPARE GEAR.

No. of Top End Bolts	2	No. of Bot. End Bolts	2
" Main Bearing Bolts	2	" Coupling Bolts	6
" Cylr. Cover Bolts Studs	6	" Valve Chest Cover Bolts Studs	6
" Feed Pump Valves	1 set	" Bilge Pump Valves	1 set
" Safety Valve Springs	one	" Fire Bars	One set + 50
" Piston Rings	✓	" Junk Ring Bolts Studs	18
" Piston Rods	✓	" Connecting Rods	✓
" Valve Spindles	✓	" Air Pump "	✓
" Air Pump Valves	✓	" " " Buckets	✓
" Crank Pin Bushes	✓	" Crosshead Bushes	✓
" Crank Shafts	✓	" Propeller Shafts	✓
" Propellers	one	" " Blades	✓
" Boiler Tubes	6	" Condenser Tubes	12

OTHER ARTICLES OF SPARE GEAR:—

200 wood condenser ferrules.
 20 bolts nuts washers.
 Plate and bar iron $\frac{1}{2}$ cwt. each.
 1 set D.B. firebars

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

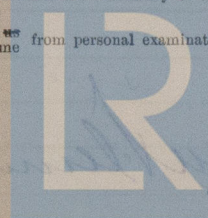
Surveyor

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. *Odland*

as ascertained by me from personal examination.



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 Guinness & Co. Ltd.
 Engineer Surveyor to the British Corporation for the
 Survey and Registry of Shipping.

Fees—

MAIN BOILERS.

H.S. 2120 Sq. ft. 10 : 0 : 0

G.S. 52.2 " : : :

Blake DONKEY BOILERS. (£2.2.0)

H.S. 300 Sq. ft. : : :

G.S. 19 " : : :

£ : : :

ENGINES.

L.P.C. 34.5 Cub. ft. 10 : 0 : 0

Testing, &c. : : :

£ : : :

Expenses ... : : :

Total ... £ 20 : 0 : 0

It is submitted that this Report be approved,

10-6-8

Chief Surveyor.

Approved by the Committee

on 10th June 1908.

Fees applied for 7-5-8

Fees paid 11-5-8

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Secretary.