

# REPORT ON MACHINERY

S.D. No. 22049  
Nve No. 48.050

Port of Sunderland

Received at London Office 18th Dec 1904  
Nve: 12th Dec 1904  
Last Survey 12th Nov 1904

No. in Survey held at Sunderland

Date, first Survey 12th October

(Number of Visits 19)

Book.

on the

3/5 "Arrival"

ster W. L. Thompson Built at Newcastle

By whom built Wood Skinner & Co.

Tons } Gross 358  
Net 126  
When built 1904

ishes made at Newcastle

By whom made W. B. M. & Co.

when made 1904

lers made at Sunderland

By whom made North Eastern Marine Engineering Co.

when made 1904

istered Horse Power

Owners C. Rowbottom

Port belonging to London

n. Horse Power as per Section 28 71 1/2

Is Refrigerating Machinery fitted no

Is Electric Light fitted yes

GINES, &c.—Description of Engines

Tri. C.P.D.

No. of Cylinders 3

No. of Cranks 3

No. of Cylinders 13

Dia. 21" 35"

Length of Stroke 24"

Revs. per minute 60

Dia. of Screw shaft

as per rule 7 3/4"

as fitted 7 3/4"

Material of screw shaft Iron

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

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

been the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive ✓

If two

rs are fitted, is the shaft lapped or protected between the liners yes

Length of stern bush 2' 11"

No. of Tunnel shaft

as per rule 6' 5"

as fitted none

Dia. of Crank shaft journals

as per rule 6' 10"

as fitted 6' 10"

Dia. of Crank pin

6' 8"

Size of Crank webs

13 1/2" x 4 1/2"

Dia. of thrust shaft under

cars 6' 8"

Dia. of screw

9 1/4"

Pitch of screw

10 ft.

No. of blades 4

State whether moveable f

Total surface 26 f

No. of Feed pumps 2

Diameter of ditto

2 1/2"

Stroke

13 1/2"

Can one be overhauled while the other is at work

yes

No. of Bilge pumps 2

Diameter of ditto

2 1/2"

Stroke

13 1/2"

Can one be overhauled while the other is at work

yes

No. of Donkey Engines 2

Sizes of Pumps

6" x 5 1/4" x 6 1/4" x 2 1/2" x 4"

No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room 2 of 2 1/2"

In Hold, &c. 2 of 2"

No. of bilge injections 1

sizes 3"

Connected to condenser, or to circulating pump C.P.

Is a separate donkey suction fitted in Engine room & size

2 1/2"

Are the roses in Engine room always accessible

yes

Are the sluices on Engine room bulkheads always accessible

yes

Are the valves on Engine room bulkheads always accessible

yes

Are they Valves or Cocks

both

all connections with the sea direct on the skin of the ship yes

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 the blow off cocks fitted with a spigot and brass covering plate

yes

Are the pipes carried through the bunkers

none

How are they protected

✓

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

en were stern tube, propeller, screw shaft, and all connections examined in dry dock new vessel

Is the screw shaft tunnel watertight

none

Is it fitted with a watertight door

✓

worked from

✓

ELERS, &c.—

(Letter for record B)

Total Heating Surface of Boilers 1177 f

Is forced draft fitted

no

and Description of Boilers

one single ended cylindrical

Working Pressure

180 lb.

Tested by hydraulic pressure to

360 lb.

of test 12/11/04

Can each boiler be worked separately

yes

Area of fire grate in each boiler

35.5 f

No. and Description of safety valves to

boiler

2 Spring

Area of each valve

2

Pressure to which they are adjusted

180 lb.

Are they fitted with easing gear

yes

Least distance between boilers or uptakes and bunkers or woodwork

18"

Mean dia. of boilers

11' 10"

Length

10' 0"

Material of shell plates

steel

Thickness

1"

Range of tensile strength

29632

Are they welded or flanged

no

Descrip. of riveting: cir. seams

double rivet by long. seams

double rivet by long. seams

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double rivet by long. seams

double rivet by long. seams

double rivet by long. seams

meter of rivet holes in long. seams

1 1/16"

Pitch of rivets

7 7/16"

Percentage of strength of longitudinal joint

82.5

Working pressure of shell by rules

182.3 lb.

Size of manhole in shell

16" x 12"

No. of compensating ring

flanged

No. and Description of Furnaces in each boiler

3-plain

Material

steel

Outside diameter

33"

Length of plain part

6' 9"

Thickness of plates

1 1/16"

Description of longitudinal joint

weld

No. of strengthening rings

✓

Working pressure of furnace by the rules

189.7

Combustion chamber plates: Material

steel

Thickness: Sides

1/16"

Back

1/16"

Top

1/16"

Bottom

1/16"

Thickness of stays to ditto: Sides

9 1/2" x 9 3/8"

Back

9 1/2" x 9 3/8"

Top

9 1/2" x 9 3/8"

Bottom

9 1/2" x 9 3/8"

Material of stays

steel

Diameter at smallest part

1.79

Area supported by each stay

89.06

Working pressure by rules

180.8

End plates in steam space:

double rivet by long. seams

double rivet by long. seams

double rivet by long. seams

double rivet by long. seams

double rivet by long. seams

double rivet by long. seams

double rivet by long. seams

double rivet by long. seams

Material of stays

steel

Thickness

1 1/32"

Pitch of stays

20 1/2" x 23"

How are stays secured

double rivet by long. seams

Working pressure by rules

182.1

Material of stays

steel

Diameter at smallest part

8.45

Area supported by each stay

465.75

Working pressure by rules

181.4

Material of Front plates at bottom

steel

Thickness

31/32"

Material of Lower back plate

steel

Thickness

1/16"

Greatest pitch of stays

14 1/2" x 9 3/8"

Working pressure of plate by rules



**DONKEY BOILER—** No. 1 Description Vertical  
 Made at Stockton By whom made J. Sudron & Co. Ltd When made 1904 Where fixed Stokehold  
 Working pressure 90 lb tested by hydraulic pressure to 180 lb. No. of Certificate 3319 Fire grate area 11 sq Description of safety valves Spring  
 No. of safety valves 2. Area of each 4.9 Pressure to which they are adjusted 90 lb. If fitted with easing gear yes If steam from main boilers can enter the donkey boiler no. Dia. of donkey boiler 4' 6" Length 10' 6" Material of shell plates S. Thickness 3/8" Range of tensile strength 27 Descrip. of riveting long. seams 2. r. lap. Dia. of rivet holes 13/16 Whether punched or drilled D. Pitch of rivets 2 3/4  
 Lap of plating 4 1/2 Per centage of strength of joint Rivets 85.17 Thickness of shell crown plates 1/2 Radius of do. 3' 9" No. of stays to do. 1  
 Dia. of stays. 1 Diameter of furnace Top 3' 5 1/2" Bottom 3' 11" Length of furnace 3' 11" Thickness of furnace plates 1/2" Description of joint S.R. lap Thickness of furnace crown plates 1/2" Stayed by dished Working pressure of shell by rules 101 lb  
 Working pressure of furnace by rules 109 Diameter of uptake 12" Thickness of uptake plates 3/8" Thickness of water tubes 3/8"

**SPARE GEAR.** State the articles supplied:— 1 set connecting rod bolts and nuts.  
2 main bearing bolts & nuts. 1 set of coupling bolts & nuts  
1 set feed and bilge pump valves. propeller. nuts. bolts  
and assorted iron

The foregoing is a correct description,

**NORTH EASTERN MARINE ENGINEERING CO. LTD** Manufacturer.

Malcolm Smith Esq

Dates of Survey while building { During progress of work in shops - - - 1904: — Oct 12, 24, 27, Nov. 1, 3, 9, 12, Dec. 1, 11, 18, 21, 28, 30, Dec. 18, 1904. Nov. 12. Visits  
 { During erection on board vessel - - -  
 Total No. of visits (Sld) 7. Total 19.

Is the approved plan of main boiler forwarded herewith yes  
 " " " donkey " " " yes

**General Remarks** (State quality of workmanship, opinions as to class, &c. Machinery and boilers  
constructed under Special Survey. Materials and  
workmanship good. Engines and boilers examined  
under steam & found satisfactory. In my opinion  
this vessel is eligible for the record in the Register  
Book of L.M.C 12/04.

It is submitted that  
 this vessel is eligible for  
 THE RECORD L.M.C. 12.04. ELEC. LIGHT.

Publ.  
22.12.04.  
22.12.04

The amount of Entry Fee.. £ 1 : : : When applied for,  
 Special £ 3. 11. 0. .. £ 10 : 13 : : 20 DEC 1904  
 Donkey Boiler Fee .. £ : : : When received, 23.12.04  
 Travelling Expenses (if any) £ : : : 22.12.04

Committee's Minute

WED, 28 DEC 1904

Assigned

+ L.M.C. 12.04  
 Elec. light

MACHINERY CERTIFICATE  
 WRITTEN.



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 Foundation

Newcastle-on-Tyne.

Certificate (if required) to be sent to  
 (The Surveys are requested not to write on or below the space for Committee's Minute.)