

# REPORT ON MACHINERY.

No. 5919

Port of Belfast

JUL 20 JUN 1905

Received at London Office

No. in Survey held at Belfast  
Reg. Book.

Date, first Survey Oct. 5<sup>th</sup> 1904 Last Survey June 13<sup>th</sup> 1905

(Number of Visits 5)

on the

S.S. "Zent"

Gross 3890

Net 2485

Master T. H. Jones

Built at Belfast

By whom built Workman Clark & Coy

When built 1905

Engines made at Belfast

By whom made Workman Clark & Coy

when made 1905

Boilers made at

By whom made

when made

Registered Horse Power

Owners Calders & Fyffes (Shipping)

Belonging to Belfast

Nom. Horse Power as per Section 28 577

Is Refrigerating Machinery fitted for cargo purposes Yes

Is Electric Light fitted Yes

## ENGINES, &c.—Description of Engines

Triple Expansion

No. of Cylinders 3

No. of Cranks 3

Dia. of Cylinders 27"-44"-75"

Length of Stroke 48"

Revs. per minute 80

Dia. of Screw shaft

as per rule 14.58

Material of screw shaft 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 burned 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 62"

Dia. of Tunnel shaft as per rule 13.59

Dia. of Crank shaft journals as per rule 14.26

Dia. of Crank pin 14 1/2"

Size of Crank web 26 1/2" x 9 1/2"

Dia. of thrust shaft under

collars 14 1/2"

Dia. of screw 16'-9"

Pitch of screw 18'-6"

No. of blades 4

State whether moveable Yes

Total surface 82 sq ft

No. of Feed pumps 2

Diameter of ditto 4 1/2"

Stroke 27"

Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2

Diameter of ditto 4 1/2"

Stroke 27"

Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2

Size of Pumps See other sheet

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

In Engine Room 4 - 3 1/2"

In Holds, &c. 4 - 3 1/2" 1 - 2 1/2"

No. of bilge injections 1 sizes 9"

Connected to condenser, or to circulating pump Pumps a separate donkey suction fitted in Engine room & size Yes - 3 1/2"

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

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 Five hold suction

How are they protected Wood casings

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

Is it fitted with a watertight door Yes

worked from Top platform E. Room Stated to be

## BOILERS, &c.—

(Letter for record 3)

Total Heating Surface of Boilers 10800 sq ft Is forced draft fitted No

No. and Description of Boilers 4 Single End Cylind.

Working Pressure 190 lbs

Tested by hydraulic pressure to 380 lbs

Date of test 8-4-05

Can each boiler be worked separately Yes

Area of fire grate in each boiler 78 1/2 sq ft

No. and Description of safety valves to

each boiler 2 - Direct Spring

Area of each valve 9.62 sq ft

Pressure to which they are adjusted 195 lbs

Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 14"

Mean dia. of boilers 16'-6"

Length 11'-0"

Material of shell plates Steel

Thickness 1 1/8"

Range of tensile strength 28-32

Are they welded or flanged No

Descrip. of riveting: cir. seams Lap Riv. long. seams Butt Joints

Diameter of rivet holes in long. seams 1 1/8"

Pitch of rivets 10"

Lap of plates or width of butt straps 22 1/16"

Per centages of strength of longitudinal joint

rivets 94.7

plate 83.7

Working pressure of shell by rules 220 lbs

Size of manhole in shell 16" x 12"

Size of compensating ring 11" Nails

No. and Description of Furnaces in each boiler 4 - Brighton

Material Steel

Outside diameter 45 1/4"

Length of plain part

top 6"

bottom 10"

Thickness of plates

crowns 3 1/8" Description of longitudinal joint Welded No. of strengthening rings 5

Working pressure of furnace by the rules 215 lbs

Combustion chamber plates: Material Steel

Thickness: Sides 1 1/2" Back 1 1/2" Top 1 1/2" Bottom 1"

Pitch of stays to ditto: Sides 8 1/2" x 7 1/2" Back 8 1/2" x 7 1/2" Top 9" x 6 1/2"

Material of stay Steel

Diameter at smallest part 1 1/8"

Area supported by stay 61 1/8"

Working pressure by rules 190 lbs

Material Steel

Thickness 1 1/2"

Pitch of stays 18" x 1 1/2"

How are stays secured Nuts inside Working pressure by rules 267 lbs

Diameter at smallest part 2 1/2" - 3 1/4"

supported by stay 288 sq ft

Working pressure by rule 251 lbs

Material of Front plates at bottom Steel

Thickness 1"

Material of Lower back plate Steel

Thickness 3/8"

Greatest pitch of stays 13 1/2"

Diameter of tubes 3 1/4"

Pitch of tubes 4 1/2" x 4 1/2"

Material of tube plate Steel

Thickness: Front 1" Back 3/4" Mean pitch of stays 9" x 8 1/2"

Pitch across wide water spaces 14 1/2"

Working pressures by rules 190 lbs

Girders to Chamber tops: Material Steel

Depth and

thickness of girder at centre 9 1/2" (4 x 3)

Length as per rule 298"

Distance apart 9' 4"

Number and pitch of Stays in each 3 - 6 1/2"

Working pressure by rules 238 lbs

Superheater or Steam chest; how connected to boiler Yes

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

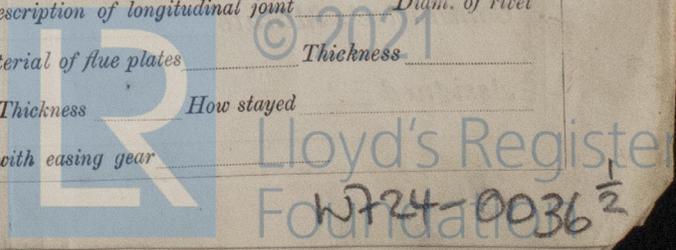
How stayed

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

If not, state whether, and when, one will be sent? Is a Report also sent on the Hull of the Ship?



Port of Belfast Continuation of Report No. 5919 dated 19<sup>th</sup> June on the

DONKEY BOILER—		No.	Description	Name
Made at	By whom made	When made	Where fixed	
Working pressure	tested by hydraulic pressure to	No. of Certificate	Fire grate area	Description of safety valves
No. of safety valves	Area of each	Pressure to which they are adjusted	If fitted with easing gear	If steam from main boilers can enter the donkey boiler
strength	Descrip. of riveting long seams	Length	Material of shell plates	Thickness
Lap of plating	Per centage of strength of joint	Plates	Thickness of shell crown plates	Radius of do.
Dia. of stays.	Diameter of furnace Top	Bottom	Length of furnace	Thickness of furnace plates
joint	Thickness of furnace crown plates	Stayed by	Working pressure of shell by rules	
Working pressure of furnace by rules	Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description, FOR WORKMAN, CLARK & CO., LIMITED, Manufacturer.

Dates of Survey while building	During progress of work in shops -	Oct. 5, 11, 28, 31, Nov. 2, 3, 4, 7, 10, 14, 18, 24, 29 Dec. 2, 7, 10, 14, 16, 20, 23 1905	Jan. 3, 5, 9, 12, 18, 24
	During erection on board vessel -	24, 31, Feb. 3, 6, 9, 14, 17, 21, 24, 28 Mar. 4, 6, 10, 21, 24, 28 Apr. 3, 6, 13, 18, 20, 28 May 4, 9, 16, 16, 20	
Total No. of visits		55	

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

The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The workmanship and the materials are of good description, and on trial in Belfast Lough, the machinery worked satisfactorily.

In my opinion, it is eligible for record + L.M.C. 6-05 and Electric Light

A Report on the Electric Light installation, will be forwarded later.

The machinery of this vessel is a duplicate of that fitted in the cutter Subeel S.S. Pacuare Belfast Report No. 5906

It is submitted that this vessel is eligible for THE RECORD H.L.M.C. 6.05 ELEC. LIGHT.

REF. MCHY.

Handwritten signature and date: 21-6-05

The amount of Entry Fee..	£ 3 - -	When applied for,	15-6-1905
Special .. .. .	£ 48-17 -	When received,	19-6-1905
Donkey Boiler Fee .. .	£ :		
Travelling Expenses (if any) £	:		

Committee's Minute

Assigned

FRI. 23 JUN 1905

MACHINERY CERTIFICATE WRITTEN.

Handwritten signature: R. J. Beveridge, Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

+ L.M.C. 6.05 elec. light

S.S. "Zent"  
 Donkey Pumps  
 Ballast 7' x 9' x 9' 6 up lex  
 2 Water Feed 8' x 10 1/2' x 24"  
 Auxiliary Feed 6' x 4 1/2' x 6" "  
 Fresh Water 4' x 4' x 6" "  
 General 7' x 5' x 8" "  
 Refrigerating 7' x 8 1/2' x 8" "

Spare Gear  
 1 Propeller Shaft  
 2 - - - - - Ballades  
 Set - - - - - Stubs & nuts  
 1 Pair Crank pin bushes  
 - - - - - Cross head  
 Air pump rod: 2 guards & studs  
 - - - - - set valves  
 2 Life valve spindles  
 2 Eccentric strap bolts  
 Lots H.P. & M.P. piston rings  
 2 Cylinder escape valves & 2 springs  
 8 Boiler feed check valves  
 1 Feed escape valve & 2 springs  
 2 Safety valve springs  
 Fan spindle for Centrifugal Pump  
 Spare gear - - - - - Engine  
 - - - - - Auxiliary pumps  
 Breakdown shaft coupling  
 50 Condenser tubes  
 24 Boiler  
 12 Junk ring bolts set & set  
 and all gear to our Rules additional

Handwritten signature: R. J. Beveridge

