

## REPORT ON MACHINERY

Hull No. 17242  
Nwe. N. 49.536.Port of *Newcastle-on-Tyne*

Received at London Office

No. in Survey held at  
Reg. Book.*South Shields*Date, first Survey *15 June*Last Survey *13<sup>th</sup> October 1905*(Number of Visits *25*)

on the

*S. S. LIBERIA*Tons } Gross *128*  
Net *6*When built *1905*

Master

Built at *Selly*By whom built *Cochrane & Sons*

Engines made at

*South Shields*

By whom made

*P. J. Grey*when made *1905*

Boilers made at

*South Shields*

By whom made

*J. J. Eltringham & Co*when made *1905*

Registered Horse Power

Owners

*W. W. Watkins*Port belonging to *London*

Nom. Horse Power as per Section 28

*63.2*

Is Refrigerating Machinery fitted

*No*

Is Electric Light fitted

*No*

## ENGINES, &amp;c.—Description of Engines

*Tri-compound*No. of Cylinders *3*No. of Cranks *3*Dia. of Cylinders *13-21-34*Length of Stroke *24*Revs. per minute *104*

Dia. of Screw shaft

as per rule *7.5*  
as fitted *7.5*Material of screw shaft *Iron*

Is the screw shaft fitted with a continuous liner the whole length of the stern tube

*No*

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*No*

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

*No* If two

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

*Painted*Length of stern bush *2.7*

Dia. of Tunnel shaft

as per rule *6.23*  
as fitted *6.23*

Dia. of Crank shaft journals

as per rule *6.54*  
as fitted *6.54*

Dia. of Crank pin

*6.5*Size of Crank webs *4.5 x 9.5*

Dia. of thrust shaft under

collars *6.5*

Dia. of screw

*8.9*

Pitch of screw

*11.6*No. of blades *4*State whether moveable *No*Total surface *28.5*

No. of Feed pumps

*1*

Diameter of ditto

*2.5*

Stroke

*13*

Can one be overhauled while the other is at work

*Yes*

No. of Bilge pumps

*1*

Diameter of ditto

*3*

Stroke

*13*

Can one be overhauled while the other is at work

*Yes*

No. of Donkey Engines

*2*

Sizes of Pumps

*5.4 x 3.2 x 5*

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

In Engine Room

*One of 2" diam*In Holds, &c. *One of 2" 4 one of 2" aft*No. of bilge injections *1* sizes *2.5* Connected to condenser, or to circulating pump*Pumps*a separate donkey suction fitted in Engine room & size *Yes 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

*Yes*

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

*Main steam pipe*

How are they protected

*Iron 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*

When were stern tube, propeller, screw shaft, and all connections examined in dry dock

*New vessel*

Is the screw shaft tunnel watertight

*Yes*

Is it fitted with a watertight door

*Yes*

worked from

*Yes*

## BOILERS, &amp;c.—

(Letter for record *5*)Total Heating Surface of Boilers *1050*

Is forced draft fitted

*No*

No. and Description of Boilers

*1 Single ended*

Working Pressure

*160 lb*Tested by hydraulic pressure to *320 lb*Date of test *14.9.05* Can each boiler be worked separately*Yes*

Area of fire grate in each boiler

*38.5*

No. and Description of safety valves to

each boiler

*Two spring loaded*

Area of each valve

*4.9*

Pressure to which they are adjusted

*165 lb*

Are they fitted with easing gear

*Yes*

Smallest distance between boilers or uptakes and bunkers or woodwork

*10"*

Mean dia. of boilers

*11.3*Length *9-6* Material of shell plates*Steel*

Thickness

*2.5*

Range of tensile strength

*28-32*

Are they welded or flanged

*No*

Descrip. of riveting: cir. seams

*Lap D.R.*

long. seams

*D.B.S.*

Diameter of rivet holes in long. seams

*1.5*

Pitch of rivets

*7.5*

Lap of plates or width of butt straps

*12.5*

Per centages of strength of longitudinal joint

rivets *83*  
plate *82.7*

Working pressure of shell by rules

*165*

Size of manhole in shell

*12 x 16*

Size of compensating ring

*McNelson*

No. and Description of Furnaces in each boiler

*2 Plain*

Material

*Steel*

Outside diameter

*40.5*

Length of plain part

top *5.11*  
bottom *5.11*

Thickness of plates

crown *1.5*  
bottom *1.5*

Description of longitudinal joint

*Welded*

No. of strengthening rings

*1.5**1.5*

Working pressure of furnace by the rules

*164*

Combustion chamber plates: Material

*Steel*

Thickness: Sides

*1.5*

Back

*1.5*

Pitch of stays to ditto: Sides

*8.5*

Back

*8.5*

Top

*9.5*

If stays are fitted with nuts or riveted heads

*nuts*

Working pressure by rules

*161*

Material of stays

*Steel*

Diameter at smallest part

*1.5*

Area supported by each stay

*8.5 x 8.5*

Working pressure by rules

*177*

End plates in steam space:

Material

*Steel*

Thickness

*2.5*

Pitch of stays

*15.5*

How are stays secured

*D. nuts*

Working pressure by rules

*161*

Material of stays

*Steel*

Diameter at smallest part

*2.5*

Area supported by each stay

*15.5*

Working pressure by rules

*175*

Material of Front plates at bottom

*Steel**1.5*

Thickness

*7.5*

Material of Lower back plate

*Steel*

Thickness

*2.5*

Greatest pitch of stays

*15.5*

Working pressure of plate by rules

*169**1.5*

Diameter of tubes

*3"*

Pitch of tubes

*4.5*

Material of tube plates

*Steel*

Thickness: Front

*2.5*

Back

*3.5*

Mean pitch of stays

*8.5 x 15.5*

Pitch across wide water spaces

*14"*

Working pressures by rules

*171*

Girders to Chamber tops: Material

*Steel*

Depth and

*2.5**9.5*

thickness of girder at centre

*5.5*

Length as per rule

*27.5*

Distance apart

*8"*

Number and pitch of Stays in each

*Two 9.5**1.5*

Working pressure by rules

*160*

Superheater or Steam chest; how connected to boiler

*Can the superheater be shut off and the boiler worked*

Description of longitudinal joint

*Steel*

Diam. of rivet

*1.5*

separately

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

*Steel*

Diam. of flue

Material of flue plates

Thickness

*1.5**1.5*

holes

Pitch of rivets

Working pressure of shell by rules

*165*

Diameter of flue

Material of flue plates

Thickness

End plates: Thickness

*1.5*

How stayed

*1.5**1.5*

If stiffened with rings

Distance between rings

Working pressure by rules

*165*

End plates: Thickness

*1.5*

How stayed

*1.5*



## DONKEY BOILER—

No.

Description

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

Dia. of donkey boiler

Length

Material of shell plates

Thickness

Range of tensile

strength

Descrip. of riveting long seams

Dia. of rivet holes

Whether punched or drilled

Pitch of rivets

Lap of plating

Per centage of strength of joint

Rivets

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

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:—

2 Top end, 2 bottom end, 2 main bearing bolts  
+ nuts, 3 piston bolts, 1 set coupling bolts, 1 set pump valves, 1 propeller  
Iron & bolts assorted

The foregoing is a correct description,

per G. T. Hey Engine Manufacturer.  
R. Bell

per J. E. Cunningham } Manufacturer of  
H. W. D. } Boilers

Dates of Survey while building  
During progress of work in shops— ENG 1905 July 6.14 Aug 4.11.24 Sep 1.13.26 30 Oct 2.6.9.10.13.  
During erection on board vessel— Blk 1905 June 15.20 July 21.28 Aug 2.9.18.25 Sep 1.7.14  
Total No. of visits 25

Is the approved plan of main boiler forwarded herewith Yes

" " " donkey " " "

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

The machinery of this vessel has been built under special survey  
& in my opinion is eligible for record E.L.M.C. 10.05

It is submitted that  
this vessel is eligible for  
THE RECORD E.L.M.C. 10.05.

Per  
19.10.05  
19.10.05

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

The amount of Entry Fee.. £ 1 : : :  
Special .. £ 9 : 9 :  
Donkey Boiler Fee .. £ : : :  
Travelling Expenses (if any) £ : : :  
When applied for, 18 OCT 1905  
When received, 23 OCT 1905

G. A. Dryden Torne  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

FRI. 20 OCT 1905

Assigned

+ L.M.C. 10.05

MACHINERY CERTIFICATE  
WRITTEN



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Foundation