

# REPORT ON MACHINERY.

No. 47727

Port of Newcastle-on-Tyne

Received at London Office TUES. 11 OCT. 1904

No. in Survey held at South Shields

Date, first Survey May 13

Last Survey Sep 27 1904

Reg. Book.

on the S.S. GRASMERE

(Number of Visits 2)

Master W. S. Robbing Built at Blyth

By whom built Blyth Shipbuilding Co. Ltd

Tons { Gross 599.45  
Net 280.18

Engines made at South Shields By whom made G. J. Grey

When built 1904

Boilers made at South Shields By whom made J. J. Ettringham & Co

when made 1904

Registered Horse Power 100

Owners Grasmere S.S. Co. Ltd

Port belonging to Newcastle-on-Tyne

Nom. Horse Power as per Section 28 97.56

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted No

## ENGINES, &c.—Description of Engines

Tri-compound

No. of Cylinders 3

No. of Cranks 3

Dia. of Cylinders 18 x 25 x 41 Length of Stroke 27 Revs. per minute

Dia. of Screw shaft as per rule 8.52 Material of screw shaft Steel

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 36"

Dia. of Tunnel shaft as per rule 7.47 Dia. of Crank shaft journals as per rule 7.845 Dia. of Crank pin 8 Size of Crank webs 11 1/2 x 5 1/4 Dia. of thrust shaft under collars 8" Dia. of screw 10.3 Pitch of screw 13 - 4 1/2 No. of blades 4 State whether moveable No Total surface 40 sq

No. of Feed pumps 2 Diameter of ditto 2 1/2 Stroke 14 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 2 1/2 Stroke 14 Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two Sizes of Pumps 4 1/2 x 2 3/4 x 4 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Two of 2 1/2" x 2 6 x 7 1/2 x 6 In Holds, &c. 2 Wings 2" 1 centre 3"

No. of bilge injections 1 sizes 3 1/2" Connected to condenser, or to circulating pump Pumps a separate donkey suction fitted in Engine room & size Yes 3"

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

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 None How are they protected No

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 York Is the screw shaft tunnel watertight No tunnel

Is it fitted with a watertight door Yes worked from Engineshaft

## BOILERS, &c.—

(Letter for record (S)) Total Heating Surface of Boilers 1617.5 sq

Is forced draft fitted No

No. and Description of Boilers One Single Ended Multitubular Working Pressure 180 lb Tested by hydraulic pressure to 360

Date of test 26.8.04 Can each boiler be worked separately Yes Area of fire grate in each boiler 50 sq No. and Description of safety valves to each boiler Two Spring Loaded Area of each valve 5.94 Pressure to which they are adjusted 185 lb Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork no side bunkers Mean dia. of boilers 31.722 Length 10'-3" Material of shell plates S

Thickness 15/32 Range of tensile strength 28-32 Are they welded or flanged Yes Descrip. of riveting: cir. seams D.R.L. long. seams DBS. T.R.

Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 7 3/8" Lap of plates or width of butt straps 17 1/2"

Per centages of strength of longitudinal joint rivets 85.1 Working pressure of shell by rules 181 Size of manhole in shell 16" x 12"

Size of compensating ring 7 1/2" x 15 1/2" No. and Description of Furnaces in each boiler 3 Plain Material S Outside diameter 41 1/2"

Length of plain part top 73" bottom 68" Thickness of plates crown 3/4" Description of longitudinal joint DBS. S.P. No. of strengthening rings Yes

Working pressure of furnace by the rules 183 Combustion chamber plates: Material S Thickness: Sides 23/32" Back 21/32" Top 23/32" Bottom 21/32"

Pitch of stays to ditto: Sides 10 1/4" x 9 5/8" Back 8 1/4" x 9 1/2" Top 9" x 10 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 180

Material of stays S Diameter at smallest part 1 1/2" x 1 3/32" Area supported by each stay 980 Working pressure by rules 210 lb End plates in steam space:

Material S Thickness 1 1/4" Double Pitch of stays 8 1/2" x 18" How are stays secured D.N.W Working pressure by rules 193 Material of stays S

Diameter at smallest part 2 3/32" Area supported by each stay 3380 Working pressure by rules 181 Material of Front plates at bottom S

Thickness 1" Material of Lower back plate S Thickness 29/32" Greatest pitch of stays 15 5/8" x 8 1/4" Working pressure of plate by rules 181

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates S Thickness: Front 1" Back 3/4" Mean pitch of stays 9" x 14 1/2"

Pitch across wide water spaces 14 1/2" Working pressures by rules 183 Girders to Chamber tops: Material S Depth and thickness of girder at centre 6 1/2" x 2 1/4" Length as per rule 32" Distance apart 9" Number and pitch of Stays in each 2 - 10 1/2"

Working pressure by rules 181 Superheater or Steam chest; how connected to boiler hd 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

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WS25-0088

**DONKEY BOILER**— No. *one* Description *one Cochran's Patent*  
 Made at *Amman* By whom made *Cochran & Co. Amman Ltd* When made *1904* Where fixed *Stockholm*  
 Working pressure *80 lbs* heated by hydraulic pressure to *160 lbs* No. of Certificate *4137* Fire grate area *9 1/2 sq ft* Description of safety valves *Spring*  
 No. of safety valves *one* Area of each *4.9* Pressure to which they are adjusted *82 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *4.6* Length *9.0* Material of shell plates *Steel* Thickness *1 3/32* Range of tensile strength *27/32* Descrip. of riveting long seams *double* Dia. of rivet holes *25/32* Whether punched or drilled *drilled* Pitch of rivets *2 5/8*  
 Lap of plating *3 7/8* Per centage of strength of joint Rivets *76.4* Plates *70.2* Thickness of shell crown plates *7/16* Radius of do. *4.9* No. of Stays to do. *39*  
 Description of stays *7/16 thick* RADIUS Diameter of furnace Top *1.10 1/2* Bottom *✓* Length of furnace *✓* Thickness of furnace plates *1 3/32* Description of joint *riveted* Thickness of furnace crown plates *1/2* Stayed by *✓* Working pressure of shell by rules *114 lbs*  
 Working pressure of furnace by rules *108 lbs* Diameter of TUBES *2 1/2* Thickness of TUBE plates *1/2* Thickness of STAY tubes *1/4*

**SPARE GEAR.** State the articles supplied:— *Two top end, 2 bottom, end, 2 main bearing bolts & nuts, 1 set coupling bolts, 1 set piston bolts, 1 set feed, bilge, air & air pump valves, 1 main donkey check valves, 1 propeller*

The foregoing is a correct description,  
*no. 7, Eltringham Rd, Newcastle-on-Tyne* Manufacturers of Main Boilers  
*G. T. Hey* Manufacturer of engines

Dates of Survey while building  
 During progress of work in shops— Eng: 1904 June 6, 16, 29, July 26, Aug 16, 25, Sep 2, 12, 15, 16, 19, 21, 27.  
 During erection on board vessel— Eng: 1904 May 12, June 2, 9, 15, July 14, Aug 5, 16, 26.  
 Total No. of visits *21*

Is the approved plan of main boiler forwarded herewith *yes*  
 " " " donkey " " " *no*

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
*The main boiler has been constructed under special survey, the material & workmanship found good, tested to the requirements & eligible in my opinion for classification. The machinery of this vessel has been built under special survey & in my opinion is eligible for record #L.M.C.9.04*

It is submitted that this vessel is eligible for THE RECORD. - L.M.C.9.04

*Pat.*  
*11.10.04*

Newcastle-on-Tyne

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

The amount of Entry Fee.. £ *1* : : :  
 Special .. .. £ *14.14* : : :  
 Donkey Boiler Fee .. .. £ : : :  
 Travelling Expenses (if any) £ : : :  
 When applied for, *10 OCT 1904*  
 When received, *18710 19*

*E. J. Stoddart* *G. A. Dryden Joynes*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *FRI. 14 OCT 1904*  
 Assigned *L.M.C.9.04*

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