

REPORT ON MACHINERY.

4446

No. 134

No. in Survey held at

Dundee

Date, first Survey 26th May

(Received in London Office 16/1/82)

Last Survey 23rd Dec 1881

639 on the I.S.S. "Granlon"

758.

Tons 1162.

Master Prior

Built at Dundee

When built October 1866

Engines made at Dundee

By whom made Gourlay Bros & Co when made 1881

Boilers made at do

By whom made do when made 1881

Registered Horse Power 120

Owners General Steam Nav Co

Port belonging to London

4 ENGINES, &c.—

Description of Engines Compound Direct Acting Invt. Cyls surface Condensing

Diameter of Cylinders 27.5" Length of Stroke 33" No. of Rev. per minute 75 Point of Cut off, High Pressure 1/2 Low Pressure 3/4

Diameter of Screw shaft 9 1/2" Diameter of Tunnel shaft 8 3/4" Diameter of Crank shaft journals 9 1/2" Diameter of Crank pin 9 1/2" size of Crank webs 6 1/2" x 11"

Diameter of screw 12.6" Pitch of screw 13.3" No. of blades 4 state whether moveable sol total surface 50 feet

No. of Feed pumps two diameter of ditto 5 1/2" Stroke 8" Can one be overhauled while the other is at work yes

No. of Bilge pumps two diameter of ditto 4 1/2" Stroke 26" Can one be overhauled while the other is at work yes

Where do they pump from all the compartments

No. of Donkey Engines one Size of Pumps 6" x 4" x 3 1/2" Where do they pump from all the compartments sea. Hotwell to boiler & on Deck

Are all the bilge suction pipes fitted with roses yes Are the roses always accessible yes Are the sluices on Engine room bulkheads always accessible yes

No. of bilge injections one and sizes 3 1/2" Are they connected to condenser, or to circulating pump circulating

How are the pumps worked by levers from piston crosshead & end of crank shaft

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

Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times yes

Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges yes

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

Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from cylinder platform

BOILERS, &c.—

Number of Boilers two Description Circular Tubular

Working Pressure 75 lbs Tested by hydraulic pressure to 150 lbs Date of test 22nd September 1881

Description of ~~connecting apparatus~~ steam chest Horizontal drums

Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately

No. of square feet of fire grate surface in each boiler 33 feet Description of safety valves Direct Spring load 9 lbs.

No. to each boiler two area of each valve 9.62 sq ft Are they fitted with easing gear yes

No. of safety valves to superheater area of each valve are they fitted with easing gear

Smallest distance between boilers and bunkers or woodwork 6 1/2"

Diameter of boilers 10.6" Length of boilers 9.0" description of riveting of shell long. seams Zap Hebble R circum. seams Zap D.R.

Thickness of shell plates 5/8" diameter of rivet holes 7/8" whether punched or drilled drilled pitch of rivets 3 1/4"

Up of plating 6 7/8" x 4 1/2" per centage of strength of longitudinal joint 76 & 78 % working pressure of shell by rules 82 lbs

Size of manholes in shell 17" x 13" size of compensating rings 4" x 4" x 3/4"

No. of Furnaces in each boiler two outside diameter 36" length, top 6.5" bottom 8.3"

Thickness of plates 7/16" description of joint butt S.R. if rings are fitted 1/2 ring at each end greatest length between rings 6.5"

Working pressure of furnace by the rules 76 lbs

Combustion chamber plating, thickness, sides 7/16" back 15/32" top 7/16"

Thickness of stays to ditto sides 9" x 8 1/2" back 9" x 8 1/2" top round

Are stays fitted with nuts or riveted heads nuts both ends working pressure of plating by rules sides 75 lbs Back 83 lbs

Diameter of stays at smallest part 1 3/32" & 1 15/32" working pressure of ditto by rules 5215 lbs

End plates in steam space, thickness 3/4" pitch of stays to ditto 16" x 17 1/2" how stays are secured thru ends nuts

Working pressure by rules Zap 82 B 72 lbs diameter of stays at smallest part top 2 3/8" bottom 2 3/8" working pressure by rules 4772 B 5/89 lbs

Front plates at bottom, thickness 9/16" Back plates, thickness 9/16" greatest pitch of stays 14" x 8 1/2" working pressure by rules 5578 lbs

DUN 107-0258

Diameter of tubes $3\frac{1}{2}$ " pitch of tubes $4\frac{3}{4}$ " thickness of tube plates, front $\frac{1}{16}$ " back $\frac{11}{16}$ "
 How stayed *tubes* pitch of stays $13\frac{1}{2} \times 9\frac{1}{2}$ " width of water spaces $1\frac{1}{2}$ "
 Diameter of ~~Superheater~~ or Steam chest $3' 0"$ length $4' 9"$
 Thickness of plates $\frac{7}{16}$ " description of longitudinal joint *Lap D.R.* diameter of rivet holes $\frac{3}{4}$ " pitch of rivets $2\frac{1}{2}$ "
 Working pressure of shell by rules $179\frac{1}{2}$ lb Diameter of flue $\frac{1}{2}$ " thickness of plates $\frac{1}{2}$ "
 If stiffened with rings $\frac{1}{2}$ " distance between rings $\frac{1}{2}$ " Working pressure by rules $\frac{1}{2}$ "
 End plates of ~~superheater~~ or steam chest; thickness $\frac{3}{4}$ " How stayed *by 3 bolt stays the ends $1\frac{1}{2}$ " dia*
 Superheater or steam chest; how connected to boiler *by two malleable necks riveted to shells*

DONKEY BOILER—one Description *Round vertical (old)*

Made at *Stokehold* By whom made *at this time* when made *1849*
 Where fixed *Stokehold* working pressure *50 lb* Tested by hydraulic pressure to *80 lb* No. of Certificate *12*
 Fire grate area *19 feet* Description of safety valves *Direct Spring* No. of safety valves *2* area of each *7 $\frac{1}{2}$ "*
 If fitted with casing gear *yes* If steam from main boilers can enter the donkey boiler *no*
 Diameter of donkey boiler *6' 0"* length *10' 0"* description of riveting
 thickness of shell plates diameter of rivet holes whether punched or drilled
 pitch of rivets lap of plating per centage of strength of joint
 thickness of crown plates stayed by *6 gusset stays*
 Diameter of furnace, top *5' 1" mean* bottom length of furnace *5' 6"*
 thickness of 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 plates thickness of water tubes

This submitted that this vessel is eligible to have the certificate renewed
16/11/82
W.B.

The foregoing is a correct description,
W.B. Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *New Boilers and Engines*
have been fitted on board of this vessel at this time all in accordance with the requirements of the Rules and to plans of boilers submitted for the committee's approval dated 28th May 1881. all the sea cocks & valves have been lifted from bottom of vessel, and fitted a turn of pipes above stoke hold plates. The boilers have been tested under steam and the safety-valves set to a working pressure of 75 lbs per square inch, and the machinery seen at work, and all found satisfactory. The material & workmanship of both Engines & boilers are of the best description. and in my opinion all is in good & safe working order, and eligible to be entered into the Register Book with the distinctive mark —
W.B. Lloyd's M.C. in red 23.12.81.

The amount of Entry Fee $\pounds 2 : - : -$ received by me,
 Special $\pounds 18 : - : -$
 Certificate (if required) $\pounds : 2 : 6$ 18
 To be sent as per margin.
 (Travelling Expenses, if any, \pounds)

Paul Mac
Letter attached
W.B.
John Sturrock
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
under assistant

Committee's Minute