

REPORT ON MACHINERY.

No. 6442

Received at London Office Rec'd 20th MAR, 1884.

No. in Survey held at
Reg. Book.

Glasgow

Date, first Survey 9th April 1883 Last Survey 19th March 1884

(Number of Visits 40) Tons 2404.44

on the

S.S. "Ning-chow"

Master J. Wallace Built at Glasgow By whom built Messrs D. & W. Henderson & Co When built 1884

Engines made at Glasgow By whom made Messrs D. & W. Henderson & Co when made 1884

Boilers made at Glasgow By whom made Messrs D. & W. Henderson & Co when made 1884

Registered Horse Power 480 Owners China Shipping Mutual S. N. Co (Sole) Port belonging to London

ENGINES, &c.—

Description of Engines Compound, Inverted direct acting Surface Condensing
Diameter of Cylinders 33" & 36" Length of Stroke 60" No. of Rev. per minute Variable Point of Cut off, High Pressure up to $\frac{1}{10}$ Low Pressure up to $\frac{9}{10}$
Diameter of Screw shaft $1\frac{1}{2}$ " Diam. of Tunnel shaft 1" Diam. of Crank shaft journals $1\frac{1}{2}$ " Diam. of Crank pin $1\frac{1}{2}$ " size of Crank webs 10x14 built W.S.
Diameter of screw 1" Pitch of screw 2.0 ft. 6 in. No. of blades 4 state whether moveable Yes total surface 83.6 ft
No. of Feed pumps two diameter of ditto 5" Stroke 30" Can one be overhauled while the other is at work Yes
No. of Bilge pumps two diameter of ditto 5" Stroke 30" Can one be overhauled while the other is at work Yes
Where do they pump from All compartments
No. of Donkey Engines two Size of Pumps 7" dia & 9" stroke; 5" dia & 5" stroke Where do they pump from Sea, Ballast tanks
Bilges of each compartment, and hotwell
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 two and sizes 2" & 4" Are they connected to condenser, or to circulating pump to condenser & centrifugal pump
How are the pumps worked By levers, with the exception of the centrifugal pump
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 Bilge & Ballast Suctions of stokehold How are they protected cased in with wood
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 On the blocks previous to being launched
Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from the top platform

BOILERS, &c.—

Number of Boilers two Description cyl. Mult. double ended Whether Steel or Iron Steel
Working Pressure 90 lbs Tested by hydraulic pressure to 180 lbs Date of test February 9th, 1884
Description of superheating apparatus or steam chest None fitted
Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately Yes
No. of square feet of fire grate surface in each boiler 106.89 sq. ft. Description of safety valves direct spring No. to each boiler two
Area of each valve 24.85 Are they fitted with easing gear Yes No. of safety valves to superheater 1 area of each valve 1
Are they fitted with easing gear Yes Smallest distance between boilers and bunkers or woodwork 18" Diameter of boilers 14" 3
Length of boilers 16' 0" description of riveting of shell long. seams dbl strap tub riv circum. seams dbl riv lap Thickness of shell plates $\frac{13}{16}$ "
Diameter of rivet holes $1\frac{1}{4}$ " whether punched or drilled drilled pitch of rivets $7\frac{1}{2}$ " long 4" in Lap of plating Straps 20" x $\frac{13}{16}$ "
Per centage of strength of longitudinal joint Plate 83 Rivets working pressure of shell by rules 102 lbs size of manholes in shell 16" x 12"
Size of compensating rings $3\frac{1}{2}$ " x 3" x $\frac{9}{16}$ " No. of Furnaces in each boiler Six
Outside diameter 3' 3" length, top 6' 3" bottom through thickness of plates $\frac{1}{16}$ " description of joint corrugated if rings are fitted no
Greatest length between rings 1" working pressure of furnace by the rules 128 lbs combustion chamber plating, thickness, sides $\frac{15}{32}$ " ~~back~~ $\frac{9}{16}$ " top $\frac{15}{32}$ "
Pitch of stays to ditto, sides $8\frac{1}{2}$ " x $\frac{1}{2}$ " back Yes top $8\frac{1}{2}$ " x $8\frac{1}{2}$ " If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 93 lbs
Diameter of stays at smallest part $1\frac{1}{2}$ " Screw working pressure of ditto by rules 122 lbs end plates in steam space, thickness $\frac{3}{4}$ "
Pitch of stays to ditto $15\frac{1}{2}$ " x $14\frac{1}{2}$ " how stays are secured dbl nuts & washers working pressure by rules 95 lbs diameter of stays at smallest part 2" working pressure by rules 147 lbs Front plates at bottom, thickness $\frac{5}{8}$ " Back plates, thickness 1
Greatest pitch of stays 1" working pressure by rules 147 lbs Diameter of tubes $3\frac{1}{4}$ " Extra $\frac{1}{4}$ " pitch of tubes $4\frac{1}{2}$ " x $4\frac{1}{2}$ " thickness of tube $\frac{1}{16}$ "
plates, front $\frac{3}{4}$ " back $\frac{3}{4}$ " how stayed Stay tubes. pitch of stays 9" x 16" width of water spaces 4"
Diameter of Superheater or Steam chest 1" length 1" thickness of plates 1" description of longitudinal joint 1" diam. of rivet holes 1"
Pitch of rivets 1" working pressure of shell by rules 147 lbs diameter of flue 1" thickness of plates 1" If stiffened with rings 1"
Distance between rings 1" working pressure by rules 147 lbs end plates of superheater, or steam chest; thickness 1" how stayed 1"
Superheater or steam chest; how connected to boiler 1"

6472 Gls

DONKEY BOILER— Description *Cylindrical Multitubular*
Made at *Glasgow* by whom made *Dr. W. Henderson & Co.* when made *1884* where fixed *On Deck*
Working pressure *90 lbs* tested by hydraulic pressure to *180 lbs* No. of Certificate *1324* fire grate area *25 sq ft* description of safety
valves *direct spring* No. of safety valves *two* area of each *4 sq in* if fitted with easing gear *Yes* if steam from main boilers can
enter the donkey boiler *No* diameter of donkey boiler *9 ft* length *9 ft* description of riveting *double butt*
Thickness of shell plates *1/2* diameter of rivet holes *1/8* whether punched or drilled *drilled* pitch of rivets *long*
per centage of strength of joint *85%* thickness of ~~end~~ plates *2 1/32* stayed by *long Stays 2 3/8; 13 1/2* pitch.
Diameter of furnace, top *2 1/2* bottom *✓* length of furnace *6 0* thickness of plates *1/16* description of joint *double straps Single*
Thickness of ~~furnace~~ *Tube* plates *3/4* stayed by *Stay tubes* working pressure of shell by rules *90 lbs*
Working pressure of furnace by rules *95 lbs* ~~thickness of plates~~ *Corr. Cham* thickness of plates *1/16* thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:— *1 Crank shaft, 1 Thrust shaft, 1 Screw shaft, 4 Propeller blades*
1 Air pump rod, 1 L.P. valve spindle, 1 Eccentric strap & liner, 2 Con. rod top end bolts & nuts
2 Con. rod bottom end bolts & nuts, 1 set of coupling bolts, 2 Main bearing bolts, 1 set of bulge & feed pump
valves & springs, 2 set of Piston springs (Suckley's), 2 M. Boiler Safety Valve Springs, 1 Donkey S.V. Spring
50 Condenser tubes, 124 Boiler tubes, Assorted nuts &c.

The foregoing is a correct description,
David W. Henderson & Co. Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.)
The Engines & Boilers of this vessel are of good workmanship and are now in good order and safe working condition, and in our opinion eligible to be classed in the Register Book "LLOYD'S M.C." 3-84.

It is submitted that this vessel is eligible to have the notification & class 354 recorded.
D. S.
20/3/84

The amount of Entry Fee *£ 3 : 0 : 0* received by me,
Special *£ 4 : 0 : 0*
Donkey Boiler Fee *£ 0 : 0 : 0*
Certificate (if required) *£ 0 : 0 : 0* *18/3/84*
To be sent as per margin.
(Travelling Expenses, if any, £ *8/-*)

Committee's Minute
FRIDAY 21 MARCH 1884
+ L. H.

J. S. Hindmarsh and John Sanderford
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Glasgow
Lloyd's Register Foundation