REPORT ON MACHINERY.

No. 6113 (Received at London Office Rec'd 24th MAY 1883.)

No. in Reg. Book. Survey held at Glasgow Date, first Survey Feby 1882 Last Survey May 22nd 1883

on the Screw Steamer "Norham Castle" 4078.62 Tons 2421.55

Master A. Winchester Built at Glasgow When built 1882-3

Engines made at Glasgow By whom made John Elder & Coy when made 1882-3

Boilers made at " By whom made " " " " when made 1882-3

Registered Horse Power 600 Owners Messrs Donald Currie & Coy Port belonging to London

ENGINES, &c.—

Description of Engines Compound Inverted Direct acting

Diameter of Cylinders 50" & 90" Length of Stroke 60" No. of Rev. per minute 68 Point of Cut off, High Pressure .6 Low Pressure variable .65

Diameter of Screw shaft 18" Diameter of Tunnel shaft 16½" Diameter of Crank shaft journals 18" Diameter of Crank pin 18¼" size of Crank webs 13 3/32 x 30"

Diameter of screw 19ft 2 Pitch of screw 24'-6" No. of blades Four state whether moveable Yes total surface 112.5 ft²

No. of Feed pumps Two diameter of ditto 6½" Stroke 26" Can one be overhauled while the other is at work Yes

No. of Bilge pumps Two diameter of ditto 6½" Stroke 25" Can one be overhauled while the other is at work Yes

Where do they pump from All Compartments

No. of Donkey Engines One Size of Pumps 12 x 7 x 12 Where do they pump from Sea, Bilge, Hotwell & Boilers

One Centrifugal Pump, has 15" Suctions to hold & Engine Room

One Centrifugal Pump for circulating water through condenser

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 16" Are they connected to condenser, or to circulating pump To Centrifugal Pumps

How are the pumps worked By Levers

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 through after bunker Bilge pipes " for How are they protected By iron casing Cast iron pipes

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 slip previous to being launched

Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from Upper platform

BOILERS, &c.— Tracing of Boiler appended hereunto

Number of Boilers Three Description Round Horizontal Double ended (Steel)

Working Pressure 80 lbs Tested by hydraulic pressure to 160 lbs Date of test 23.11.82 Dm

Description of superheating apparatus or steam chest none

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 116 ft² Description of safety valves Direct Spring

No. to each boiler Two area of each valve 28.27" 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 2'-6" Stokeholds

Diameter of boilers 14'-3" Length of boilers 12'-3" description of riveting of shell long. seams Treble riveted double butt straps circum. seams Double riveted

Thickness of shell plates 14/16" Steel diameter of rivet holes 15/16" whether punched or drilled Drilled pitch of rivets 8 3/8" x 2 3/4"

Lap of plating Straps 14" per centage of strength of longitudinal joint 82% working pressure of shell by rules 109 lbs

Size of manholes in shell 16" x 12" size of compensating rings Forged rings

No. of Furnaces in each boiler Six outside diameter 3'-6" length, top 6'-9" bottom Through furnaces

Thickness of plates 7/16" description of joint Corrugated if rings are fitted — greatest length between rings —

Working pressure of furnace by the rules 119 lbs

Combustion chamber plating, thickness, sides 7/16" full = .45" back — top .45"

Pitch of stays to ditto sides 8 3/4" x 8 3/4" back — top 8 3/4" x 8"

If stays are fitted with nuts or riveted heads Nuts working pressure of plating by rules 80 lbs

Diameter of stays at smallest part 1 1/8" Steel working pressure of ditto by rules 101 lbs

End plates in steam space, thickness 25/32" pitch of stays to ditto 15 3/4" x 15" how stays are secured By double nuts

Working pressure by rules 92 lbs diameter of stays at smallest part 2½" working pressure by rules 109 lbs

Front plates at bottom, thickness 10/16" Back plates, thickness — greatest pitch of stays — working pressure by rules —

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Diameter of tubes 3½" pitch of tubes 4 3/4" thickness of tube plates, front 11/16" back 11/16"
How stayed By Tubes pitch of stays 9½" × 14¼" width of water spaces 4½"
Diameter of Superheater or Steam chest none length —
Thickness of plates — description of longitudinal joint — diameter of rivet holes — pitch of rivets —
Working pressure of shell by rules — Diameter of flue — thickness of plates —
If stiffened with rings — distance between rings — Working pressure by rules —
End plates of superheater, or steam chest: thickness — How stayed —
Superheater or steam chest; how connected to boiler —

DONKEY BOILER— Description Round Horizontal (Steel)
Made at Glasgow By whom made Anderson & Lyall when made 1883
Where fixed On Upper deck working pressure 80 lbs Tested by hydraulic pressure to 160 lbs No. of Certificate 95.
Fire grate area 30 ft² Description of safety valves Direct Spring No. of safety valves Two area of each 4"
If fitted with easing gear Yes If steam from main boilers can enter the donkey boiler no
Diameter of donkey boiler 8'-6" length 8'-6" description of riveting Double riveted Lap
thickness of shell plates 8/16" diameter of rivet holes 13/16" whether punched or drilled Drilled
pitch of rivets 3 3/8" lap of plating 6¼" per centage of strength of joint 45%
thickness of ~~end~~ plates 12/16" stayed by Bar Stays 2" dia (iron)
Diameter of furnace, ~~M~~ 2'-9" bottom — length of furnace 6'-6"
thickness of plates 11/16" Crowns & 9/16" bottom description of joint Double Straps
thickness of ~~Combustion~~ Combustion Chamber plates 9/16" stayed by Screw Stays 1⅛" dia 4½" × 8" pitch
Working pressure of shell by rules 80 lbs working pressure of furnace by rules 80 lbs
diameter of ~~uptake~~ Dome 2'-0" thickness of plates 6/16" ~~thickness of tube tubes~~ Dome stayed by 2 Stays 1⅛" dia

The foregoing is a correct description,
John Elder Hay
p. A.K. Bryce Douglas Manufacturer.

JOHN ELDER & CO FAIRFIELD ENGINE WORKS GOVAN

General ~~Remarks~~ (State quality of workmanship, opinions as to class, &c. These Engines and Boilers are of good workmanship and material and are now in good order and Safe working Condition and eligible in my opinion to be Noted in the Register Book ✠ Lloyd
W. C. 5/83

As submitted that this vessel is eligible to have the notation & Line recorded JM 24/5/83

The amount of Entry Fee £ 3 : 0 : 0 received by me,
Special .. £ 50 : 0 : 0
Certificate (if required) .. £ Gratis 21/5/1883
To be sent as per margin.
(Travelling Expenses, if any, £ —)

James Mollison
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.
Clyde District

Committee's Minute FRIDAY 25 MAY 1883 18

Robert Edmund Taylor & Son Printers, 19, Old Street, Goswell Road, London, E.C.