REPORT ON MACHINERY. 4061

Port of Aberdeen

Received at London Office 4 MARCH 1890

No. 4061 No. in Reg. Book.

Survey held at Aberdeen Date, first Survey Dec 24/88 Last Survey Mar 3 1890 (Number of Visits 93)

on the S.S. "Bonaccord" Tons 909 net

Master C R Davidson Built at Aberdeen By whom built Messrs A Hall & co When built 1889

Engines made at Aberdeen By whom made Messrs Blaikie Bros when made 1889

Boilers made at Aberdeen By whom made Messrs A Hall & co when made 1889

Registered Horse Power ~~200~~ 160 Owners Messrs Jr A Davidson Port belonging to Aberdeen

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ENGINES, &c.—

(Triple expansion)

Description of Engines Triple Expansive Inverted direct acting Surface condensing

Diameter of Cylinders 21", 34 & 56 Length of Stroke 39" No. of Rev. per minute Point of Cut off, High Pressure 23" Low Pressure 25"

Diameter of Screw shaft 11" Diam. of Tunnel shaft 10½ Diam. of Crank shaft journals 11" Diam. of Crank pin 11" size of Crank webs 8" x 13"

Diameter of screw 14'-0" Pitch of screw 18'-0" No. of blades 4 state whether moveable No total surface 54 sq ft

No of Feed pumps two diameter of ditto 3" Stroke 20" Can one be overhauled while the other is at work Yes

No. of Bilge pumps two diameter of ditto 3½ Stroke 20 Can one be overhauled while the other is at work Yes

Where do they pump from the bilges of each compartment

No. of Donkey Engines one & centrifu Size of Pumps 3½ cyl 5¼ stroke 5 Where do they pump from Sea, ballast tanks hotwell, and bilges of each compartment

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 4" dia Are they connected to condenser, or to circulating pump air pump

How are the pumps worked By levers on Low pressure Engine

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

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 previous to launching

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

(State if Report is absent of the Ship)

BOILERS, &c.—

Number of Boilers Two Description Cylindrical Multitubular Whether Steel or Iron Steel "S"

Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs Date of test January 10th 1890

Description of superheating apparatus or steam chest ✓

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 45 sq ft Description of safety valves direct spring No. to each boiler two

Area of each valve 4.91 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 sufficient; a few ft Diameter of boilers 13'-6"

Length of boilers 10 ft description of riveting of shell long. seams treb. rivt butt circum. seams dbl & treb. rivt lap Thickness of shell plates 1 3/16"

Diameter of rivet holes 1¼" whether punched or drilled drilled pitch of rivets 8½" & 4¼" Lap of plating Straps 17" x 15/16"

Per centage of strength of longitudinal joint 85.3 working pressure of shell by rules 162 lbs size of manholes in shell 12½" x 16½"

~~Size of~~ double compensating rings 9/16" x 13/16" double riveted No. of Furnaces in each boiler three

Outside diameter 39" length, top 6'-10" bottom 8'-9" thickness of plates 17/32" description of joint ribbed if rings are fitted Yes

Greatest length between rings working pressure of furnace by the rules 166 lbs combustion chamber plating, thickness, sides 9/32" back 17/32" top 17/32"

Pitch of stays to ditto, sides 6¾" x 7 7/8" back 7" x 6½" top radial & gusset If stays are fitted with nuts or riveted heads nuts working pressure of plating by rules 174 lbs Diameter of stays at smallest part 1¼" & 1⅝" screw working pressure of ditto ~~by rules~~ 160 lbs end plates in steam space, thickness 15/16"

Pitch of stays to ditto 14" x 14" how stays are secured dbl nuts & washers working pressure by rules 160 lbs diameter of stays at smallest part 2⅜" eff area = 3.77 working pressure by rules 143 lbs Front plates at bottom, thickness 15/16" Back plates, thickness 15/16" & doubled 5/8"

Greatest pitch of stays 13 5/8" working pressure by rules 160 lbs Diameter of tubes ~~4"~~ 3¾" 3½" pitch of tubes 4¾" thickness of tube plates, front 15/16" doubled 5/8" back 21/32" how stayed Stay tubes pitch of stays 9½" width of water spaces 1¼"

Diameter of Superheater or Steam chest ✓ length ✓ thickness of plates ✓ description of longitudinal joint ✓ diam. 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 ✓

[Form No. 8—2000—17/8/96—T & S—Transfer Ink]

4061 Abn

DONKEY BOILER— Description Vertical

Made at Aberdeen by whom made Messrs A Hall & co when made 1889 where fixed Stokehold

Working pressure 70 lbs tested by hydraulic pressure to 140 lbs No. of Certificate 40 fire grate area 24 sq ft description of safety valves direct spring No. of safety valves One area of each 12.56 if fitted with easing gear Yes if steam from main boilers can enter the donkey boiler No diameter of donkey boiler 6ft 6" length 12 ft description of riveting double punched lap

Thickness of shell plates ½" diameter of rivet holes ¾" whether punched or drilled drilled pitch of rivets 2⅞" lap of plating 4"

per centage of strength of joint 61.2% thickness of crown plates 11/16 & dbld ½" stayed by 8 - 2⅛ stays

Diameter of furnace, top 5 ft bottom 5 . 10" length of furnace 6 . 6" thickness of plates 9/16" description of joint S. pin lap

Thickness of furnace crown plates 9/16" stayed by as above working pressure of shell by rules 84 lbs

Working pressure of furnace by rules 70 lbs diameter of uptake 18" thickness of plates 7/16" thickness of water tubes 5/16"

SPARE GEAR. State the articles supplied :— 1 Propeller, 1 tail shaft, 1 Valve Spindle, 1 set of H.P. piston springs, 1 set of junk ring bolts 1 air-pump rod, 1 circulating pump rod 2 bottom end bolts and nuts 2 top end ditto, 2 Main bearing bolts 1 set of coupling bolts, 1 set of feed pump valves & seats 1 set of bilge valves 1 doz condenser tubes 1 doz boiler tubes assorted bolts &c

The foregoing is a correct description,

Manufacturer. Blaikie Bros Makers of Engines
M. Hall & Co. Makers of Boilers

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

The Engines and Boilers of this Vessel have been constructed under special Survey; they are of good material and workmanship They are now in good working condition and eligible in my opinion to receive the notification of ✠ L M C 3-90 in the Reg^r Book

The Main Boiler Tracing is returned herewith

It is submitted that this Vessel is eligible to have ✠ L.M.C. 3-90. recorded

W A.
4-3-90

The amount of Entry Fee .. £ 2 : : received by me.

Special .. .. .. £ 22 : 10 :

Donkey Boiler Fee .. .. £ 2 : 2 :

Certificate (if required) .. £ gratis : 8/3/1890

To be sent as per margin.

(Travelling Expenses, if any, £)

Sp L Hindmarsh
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute FRIDAY 7 MARCH 1890

Machinery Boilers Writers

✠ L M C 3, 90

R. & J. TAYLOR & CO'S STEAM PRINTERS, 10 OLD STREET, GOSWELL ROAD, LONDON, E.C.