

REPORT ON MACHINERY.

Port of Belfast

FRI 20 OCT 1893

Received at London Office

18

No. in Survey held at
eg. Book.BelfastDate, first Survey March 10th Last Survey October 13th 1893(Number of Visits 20)148 on the Iron screw steamer "Ardanbhan"Tons { Gross 1132
Net 718When built 1880-6Master R. Smith Built at M. Glasgow By whom built H. Murray & CoEngines made at Glasgow By whom made W. King & Co when made 1880Machinery made at Belfast By whom made Mac Ilwaine & Mac Coll. Lim. when made 1893-10Registered Horse Power 98 Owners Ardan S.S. Co. Lim. Port belonging to Glasgown. Horse Power as per Section 28 148 (by Rule for triple expansion)

GINES, &c.— Description of Engines Compound. No. of Cylinders Two

Diameter of Cylinders 25 & 50 Length of Stroke 36 Revolutions per minute _____ Diameter of Screw shaft as per rule
as fitted

Diameter of Tunnel shaft _____ Diameter of Crank shaft journals _____ Diameter of Crank pin _____ Size of Crank webs _____

Diameter of screw _____ Pitch of screw _____ No. of blades _____ State whether moveable _____ Total surface _____

of Feed pumps _____ Diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____

of Bilge pumps _____ Diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____

of Donkey Engines _____ Sizes of Pumps _____ No. and size of Suctions connected to both Bilge and Donkey pumps _____

Engine Room _____ In Holds, &c. _____

of bilge injections _____ sizes _____ Connected to condenser, or to circulating pump _____ Is a separate donkey suction fitted in Engine room & size _____

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

all connections with the sea direct on the skin of the ship _____ Are they Valves or Cocks _____

they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates _____ Are the discharge pipes above or below the deep water line _____

they each fitted with a discharge valve always accessible on the plating of the vessel _____ Are the blow off cocks fitted with a spigot and brass covering plate _____

at pipes are carried through the bunkers _____ How are they protected _____

all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times _____

the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges _____

on were stern tube, propeller, screw shaft, and all connections examined in dry dock _____ Is the screw shaft tunnel watertight _____

it fitted with a watertight door _____ worked from _____

ELERS, &c.— (Letter for record S) Total Heating Surface of Boilers 2118.5

and Description of Boilers One single-ended 3-flue Working Pressure 100 Tested by hydraulic pressure to 200

of test 4.9.93 Can each boiler be worked separately ✓ Area of fire grate in each boiler 64½ No. and Description of safety valves to _____

boiler Two, Cornbells pat. Area of each valve 12.56 Pressure to which they are adjusted 105 lbs Are they fitted _____

easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork _____ Mean diameter of boilers 15" 0

gth 10' 6" Material of shell plates steel Thickness 7/8" Description of riveting: circum. seams doub. riv. long. seams doub. straps

diameter of rivet holes in long. seams 1" Pitch of rivets 6" Length of plates or width of butt straps 15½" x ¾"

percentages of strength of longitudinal joint _____ rivets 89.0 Working pressure of shell by rules 111 lbs Size of manhole in shell 16" x 12"

of compensating ring 24½" x 23½" x 1½" No. and Description of Furnaces in each boiler 3 ribbed Material steel Outside diameter 43 7/8"

gth of plain part _____ Thickness of plates _____ crown 7/16" Description of longitudinal joint welded No. of strengthening rings 9 ribs

working pressure of furnace by the rules 132 Combustion chamber plates: Material steel Thickness: Sides 1/2" Back 1/2" Top 1/2" Bottom 9/16"

h of stays to ditto: Sides 8 3/4" x 7/4" Back 8 1/2" x 8 3/4" Top 7 x 8 1/2" If stays are fitted with nuts or riveted heads _____ Working pressure by rules 100

erial of stays steel Diameter at smallest part 1 1/8" Area supported by each stay 76½" Working pressure by rules 103 End plates in steam space: _____

erial steel Thickness 13/16" Pitch of stays 16 x 16 How are stays secured doub. nuts Working pressure by rules 122 Material of stays steel

diameter at smallest part 2 1/4" Area supported by each stay 256" Working pressure by rules 106 Material of Front plates at bottom steel

thickness 1 1/16" Material of Lower back plate steel Thickness 1 1/16" Greatest pitch of stays as approx. Working pressure of plate by rules 100

diameter of tubes 3 3/4" Pitch of tubes 4 3/4" x 4 1/2" Material of tube plates steel Thickness: Front 1 1/16" Back 3/8" Mean pitch of stays 9 1/8"

h across wide water spaces 14" Working pressures by rules 100 + Girders to Chamber tops: Material steel Depth and _____

thickness of girder at centre 6" x 3/4" (two) Length as per rule 29 7/8" Distance apart 8 1/2" wings Number and pitch of Stays in each three at 7"

working pressure by rules _____ Superheater or Steam chest; how connected to boiler 15½" neck Can the superheater be shut off and the boiler worked _____

rately no Diameter 3' 6" Length 4' 0" Thickness of shell plates 1/2" Material steel Description of longitudinal joint single lap of rivet _____

15/16" Pitch of rivets 2 1/4" Working pressure of shell by rules 138 Diameter of flue _____ Material of flue plates _____ Thickness _____

stayed with rings _____ Distance between rings _____ Working pressure by rules _____ End plates: Thickness 5/8" How stayed 4 stays 1 3/4" steel

working pressure of end plates 100 lbs Area of safety valves to superheater _____ Are they fitted with easing gear _____

DONKEY BOILER— Description *Vertical boiler, stamped No 690 Lloyd's test 160 lbs 31.7.93*
 Made at _____ By whom made _____ When made *7.93* Where fixed *In stockroom*
 Working pressure *80* tested by hydraulic pressure to *160* No. of Certificate *690* Fire grate area _____ Description of safety valves *Turnbull's*
 No. of safety valves *2* Area of each *5.94* Pressure to which they are adjusted *85 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no.* Diameter of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____
 Description of riveting long. seams _____ Diameter of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____
 Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Thickness of shell crown plates _____ Radius of do. _____ No. of Stays to do. _____
 Dia. of stays. _____ Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace 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 uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

Manufacturer.

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

A new steel main boiler with all valves, cocks & connections has been fitted on board. The boiler & main steam pipe were tested to double the working pressure, & the safety valves are adjusted to blow under steam at 105 lbs per sq in. The approved photoprint of the boiler is forwarded with this report.

A new donkey boiler has been placed on board & properly fitted with all required connections & valves. The safety valves are adjusted to blow at 85 lbs per sq in. The boiler was made by Riley Bros of Stockton & a print & particulars are given on the attached forms.

A new liner has been fitted in the N. P. cylinder of the reduced diam of 25"; a new H.P. piston, slide valve & valve casing cover have been fitted.

The crank shaft was found cracked in the forward fillet of the after journal; this is stated to have been caused by undue straining when the vessel was aground off Pillarsene France in July. See copy of damage report attached. A new crank shaft has been fitted, together with new main bearing brasses & new top-end brasses.

The L.P. cylinder & piston & slide valve overhauled.

In dry dock the propeller & outer fastenings of sea connections were found good.

The machinery is as far as seen in good order & in my opinion renders the vessel eligible for the record + N.B. 10.93. The altered boiler pressure & diam. of H.P. cylinder to be noted in the Register book.

HP Cyl 25 inch
100 pressure

It is submitted that
this vessel is eligible for
THE RECORD B.S. 10-93 + N.B. 93.

on acct of ten years new main & donkey boilers were fitted, also on acct of damage a new crank shaft was fitted, also the brasses for it.
N.A. 25-10-93

A. L. Jones

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

Certificate (if required) to be sent to

The amount of Entry Fee... £ : :
 Special & repair £ 10-10-0
 Donkey Boiler Damage £ 1-1-0
 Travelling Expenses (if any) £ : :
 When applied for, 19th Oct 1893
 When received, 19th Oct 1893

Committee's Minute

Assigned

TUES. 24 OCT 1893

+ N.B. 10.93
B.S. 10.93



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