

REPORT ON MACHINERY.

Port of BelfastReceived at London Office SAT. MAY 2 1896No. in Survey held at Belfast
eg. Book.Date, first Survey 19th April 1896 Last Survey 31st April 1896(Number of Visits 34)on the Steel Twin Screw Steamer "Iran"Tons Gross 6250Net 5257When built 1896Master Thos. Hughes Built at BelfastBy whom built Harland & Wolff LtdEngines made at BelfastBy whom made Harland & Wolff Ltdwhen made 1896Boilers made at BelfastBy whom made Harland & Wolff Ltdwhen made 1896Registered Horse Power 478Owners Iran Steam Ship Co. LtdPort belonging to LiverpoolNom. Horse Power as per Section 28 478

(Laward Baker & Sons Mgrs)

ENGINES, &c.— Description of Engines Triple Expansion Twin Screws No. of Cylinders Six

Diameter of Cylinders 18 1/2, 31, 52 Length of Stroke 48 Revolutions per minute 75 Diameter of Screw shaft as per rule 11"
as fitted 12"

Diameter of Tunnel shaft as per rule 10 1/4" Diameter of Crank shaft journals 12" Diameter of Crank pin 12" Size of Crank webs 8 1/2 x 15 1/2
as fitted 11 1/4"

Diameter of screw 14 1/2" Pitch of screw 19 1/2" No. of blades 3 State whether moveable Yes Total surface 53 1/2 sq ft
each propeller

No. of Feed pumps Two Diameter of ditto 4 1/4" Stroke 2 1/4" Can one be overhauled while the other is at work One on each engine

No. of Bilge pumps Two Diameter of ditto 5" Stroke 2 1/4" Can one be overhauled while the other is at work " " "

No. of Donkey Engines Four Sizes of Pumps Donkey Eng. Rm. donkey 7 1/2 x 5 1/2"
Water fed 10 x 8 x 2 1/4" No. and size of Suctions connected to both Bilge and Donkey pumps
Westminster ballast 12 x 10 x 1 1/4" Carriers sup. 4 x 2 1/2 x 1 1/4" Holds, &c. No 1 hold one 3 1/2" No 2 hold two 3 1/2"

Engine Room Three 3 1/2" No 3 hold two 3 1/2" No 4 hold two 3 1/2" No 5 hold one 3 1/2" Tunnel well, two 2 1/2"

No. of bilge injections 2 sizes 6 1/2" Connected to condenser, or to circulating pump Yes Is a separate donkey suction fitted in Engine room & size Yes 3 1/2"

Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible None

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Larger valves smaller cocks

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 Below

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

How are the pipes carried through the bunkers Forward bilge suction How are they protected Strong wood casing

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

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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock Before launch Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes worked from level of deck

Total Heating Surface of Boilers 7998 sq ft**BOILERS, &c.—**(Letter for record S)

Description of Boilers Two double- & two single-ended Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs

Can each boiler be worked separately Yes Area of fire grate in each boiler 76 sq ft No. and Description of safety valves to 38 lbs

Area of each valve 9.62 sq ft Pressure to which they are adjusted 205 lbs Are they fitted Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 2 feet Mean diameter of boilers 12' 5"

Material of shell plates Steel Thickness 1 5/16" Description of riveting: circum. seams Double treble; long. seams Double butt treble

Pitch of rivets 9 1/4" Lap of plates or width of butt straps 20 1/2" x 1" thick

Working pressure of shell by rules 214 lbs Size of manhole in shell 16" x 12"

No. and Description of Furnaces in each boiler 2 Material Steel Outside diameter 46"

Description of longitudinal joint Welded No. of strengthening rings ✓

Working pressure of furnace by the rules 219 Combustion chamber plates: Material Steel Thickness: Sides 19/32" Back 19/32" Top 7/8" Bottom 3/4"

Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 60" max Working pressure by rules 194 1/2" End plates in steam space: Steel

Thickness 1 1/16" Pitch of stays 14 1/2" x 16 1/2" How are stays secured Double nut Working pressure by rules 200 lbs Material of stays Steel

Area supported by each stay 288 sq in Working pressure by rules 200 Material of Front plates at bottom Steel

Material of Lower back plate Steel Thickness 1 5/16" Greatest pitch of stays As app. or Working pressure of plate by rules 200 lbs

Material of tube plates Steel Thickness: Front 7/8" Back 3/4" Mean pitch of stays 8 1/2"

Working pressures by rules 200 lbs Girders to Chamber tops: Material Wt. Iron Depth and 4 at 7 3/4" S. E.

Distance apart 8 1/8" Number and pitch of Stays in each 2 x 7 3/8" S. E.

Can the superheater be shut off and the boiler worked ✓

Description of longitudinal joint Welded Diam. of rivet 3/4"

Working pressure of shell by rules 214 lbs Diameter of flue 14" Material of flue plates Steel Thickness 1 5/16"

Working pressure of end plates 200 lbs Area of safety valves to superheater 200 lbs Are they fitted with easing gear ✓

BEL65-0120

DONKEY BOILER— Description *Single ended main boiler used for auxiliary purposes.* When made _____ Where fixed _____

Made at _____ By whom made _____ Fire grate area _____ Description of safety valves _____

Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ If fitted with easing gear _____ If steam from main boilers _____

No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ Material of shell plates _____ Thickness _____

enter the donkey boiler _____ Diameter of donkey boiler _____ Length _____ Whether punched or drilled _____ Pitch of rivets _____

Description of riveting long. seams _____ Rivets _____ Thickness of shell crown plates _____ Radius of do. _____ No. of Stays to do. _____

Lap of plating _____ Per centage of strength of joint _____ Plates _____ Length of furnace _____ Thickness of furnace plates _____ Description _____

Dia. of stays _____ Diameter of furnace Top _____ Bottom _____ Working pressure of shell by rules _____

joint _____ Thickness of furnace crown plates _____ Stayed by _____ Thickness of uptake plates _____ Thickness of water tubes _____

Working pressure of furnace by rules _____ Diameter of uptake _____

SPARE GEAR. State the articles supplied:— Two propeller blades. Piece crank shaft. Piston rod. 2 Pair to
 trasses. 1 Pair bottom end trasses. Eccentric & strap. Propeller shaft. Air pump rod, bucket & g
 Centrif pump spindle & impeller. 2 feed & 2 Bilge pump valves. 1 & 2 P valve spindles with the
 8 h.p. piston rings. 4 S.P. piston rings. 2 sets rings for piston valves. Two main bearing bolts. Two con.
 top end & two bottom end bolts. 12 shaft coupling bolts. Two sets studs & nuts for one propeller bla
 12 pump ring bolts. Assorted bolts & crew of various sizes. 25 Condenser tubes. 4 Safety valve sp
 One set main pump valves & steam valve chest. 1 set furnace bars & 1 set of bearings.

The foregoing is a correct description,
Harland & Wolff Ltd. Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.)
 During progress of work in shops— *Apr. 19 Aug. 2, 23, Sept 24, 25 Oct 25, 11, 16 Nov 11, 14, 15, 19, 29 Dec 4, 11, 13, 16 Jan*
 During erection on board vessel— *Feb 4, 19, 24, 28 Mar. 4, 11, 12, 14, 24, 31 April 9, 13, 14, 30.*
 Total No. of visits *34.*

The above described engines & boilers have been made & fitted under special supervision
 & the workmanship is throughout good.
 Each separate length of main steam pipe has been tested to double the working
 pressure by water pressure & found satisfactory.
 The pumping arrangements are fitted in accordance with the approved plan.
 The electric lighting has been carried out by Messrs. B. H. Allen & Co. & the report
 will be shortly forwarded.
 The vessel made a satisfactory trial run on the 30th April.
 Two boiler photographs, a tracing of the pumping arrangements & seven
 forging certificates accompany this report.
 The machinery in my opinion renders the vessel eligible for the record
 + *L.M.C. 4.96* in the Register Book

It is submitted that
 this vessel is eligible for
THE RECORD. *L.M.C. 4.96. Elec: Light:*
H.S.
2.5.96.
Emil.
2.5.96.

Certificate (if required) to be sent to _____

The amount of Entry Fee. £ 3 : 0 :
 Special £ 43 : 18 :
 Donkey Boiler Fee £ : :
 Travelling Expenses (if any) £ : :
 Committee's Minute
 Assigned

When applied for, *1st May 1896*
 When received, *5/5/96*

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

TUES. MAY 5 1896
 + *L.M.C. 4.96*
elec. Light