

# REPORT ON MACHINERY.

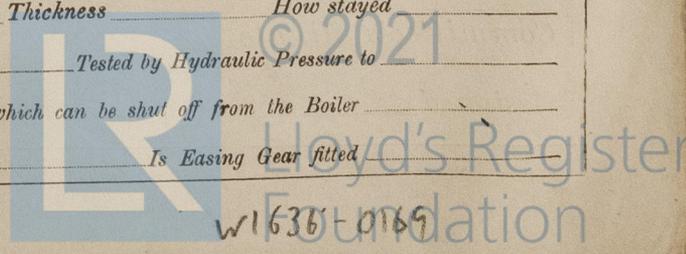
No. 9363  
17 JUN 1925

Date of writing Report June 16<sup>th</sup> 1925 When handed in at Local Office Port of Belfast  
 No. in Survey held at Belfast Date, First Survey 27<sup>th</sup> Nov 1924 Last Survey 9<sup>th</sup> June 1925  
 Reg. Book. New Steel by S.S. Invercaigo (Number of Visits 37)  
 Master Belfast Built at Belfast By whom built Harland & Wolff Ltd Tons { Gross 2349  
 Engines made at Glasgow By whom made A. J. Inglis Ltd when made 1925  
 Boilers made at Belfast By whom made Harland & Wolff Ltd when made 1925  
 Registered Horse Power 196 Owners Pago Shipping Co Ltd Port belonging to London  
 Nom. Horse Power as per Section 28 196 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

**ENGINES, &c.**—Description of Engines (Twin) Triple expansion No. of Cylinders 6 No. of Cranks 6  
 Dia. of Cylinders 13 1/2 x 22 1/2 x 26 Length of Stroke 24 Revs. per minute 125 Dia. of Screw shaft 4 1/8 Material of screw shaft Steel  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes Is the after end of the liner made water tight  
 in the propeller boss yes If the liner is in more than one length are the joints burned yes If the liner does not fit tightly at the part  
 between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive yes If two  
 liners are fitted, is the shaft lapped or protected between the liners yes Length of stern bush 3'0" aft 1'9" fwd  
 Dia. of Tunnel shaft 6.85 as per rule none Dia. of Crank shaft journals 4.19 as per rule 4.19 Dia. of Crank pin 4 1/8 Size of Crank webs 1 1/2 x 1 1/2 Dia. of thrust shaft under  
 collars 4 1/8 as fitted 4 1/8 Dia. of screw 9'0" Pitch of Screw 9'6" No. of Blades 4 State whether moveable no Total surface 28 ft<sup>2</sup> each  
 No. of Feed pumps 2 Diameter of ditto 2 1/4 Stroke 13 1/2 Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 2 1/4 Stroke 13 1/2 Can one be overhauled while the other is at work yes  
 No. of Donkey Engines 6 Sizes of Pumps 1 1/2 x 6 x 12 2 oil fuel pumps 1 1/2 x 6 x 12 2 oil fuel pumps 1 1/2 x 6 x 12 No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room 1 @ 3'0", 1 @ 7'0", 2 @ 7'0" Cofferdams In Holds, &c. 1 @ 3'0" in each buoyancy tank, 1 @  
7'0" cofferdam & 1 @ 7'0" pump room, Holds carrying petroleum in bulk  
 No. of Bilge Injections 2 sizes 4" Connected to condenser, or to circulating pump CR 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 yes  
 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 none How are they protected yes  
 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  
 Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door worked from

**BOILERS, &c.**—(Letter for record 2) Manufacturers of Steel D. Colville & Sons Ltd  
 Total Heating Surface of Boilers 2702 ft<sup>2</sup> Is Forced Draft fitted no No. and Description of Boilers Two single ended (2 S.E.)  
 Working Pressure 180 lbs Tested by hydraulic pressure to 320 lbs Date of test 24-4-25 No. of Certificate 862  
 Can each boiler be worked separately yes Area of fire grate in each boiler 49 ft<sup>2</sup> No. and Description of Safety Valves to  
 each boiler Two spring loaded Area of each valve 9.62 ft<sup>2</sup> Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 2'0" Mean dia. of boilers 14'3" Length 10'6" Material of shell plates Steel  
 Thickness 1 1/2" Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D.R.  
 long. seams T.R.D.B.S. Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 3/8" Lap of plates or width of butt straps 18 1/2"  
 Per centages of strength of longitudinal joint 85.0% Working pressure of shell by rules 180 lbs Size of manhole in shell 16 x 12  
 Size of compensating ring 20 x 4 x 30 No. and Description of Furnaces in each boiler 3 corrugated Material Steel Outside diameter 3'4 1/2"  
 Length of plain part top 1 1/2" Thickness of plates bottom 1 1/2" Description of longitudinal joint weld No. of strengthening rings yes  
 Working pressure of furnace by the rules 191 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 3/4"  
 Pitch of stays to ditto: Sides 8 1/2 x 8 1/2 Back 9 1/4 x 7 1/2 Top 8 x 8 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 188 lbs  
 Material of stays Steel Area at smallest part 1.46 ft<sup>2</sup> Area supported by each stay 42.25 ft<sup>2</sup> Working pressure by rules 210 lbs End plates in steam space:  
 Material Steel Thickness 1 1/8" Pitch of stays 14 1/2 x 20 1/2 How are stays secured N. Wash Working pressure by rules 182 lbs Material of stays Steel  
 Area at smallest part 6.33 ft<sup>2</sup> Area supported by each stay 346 ft<sup>2</sup> Working pressure by rules 182 lbs Material of Front plates at bottom Steel  
 Thickness 1 1/8" Material of Lower back plate Steel Thickness 1 1/8" Greatest pitch of stays 13 1/2 x 1 1/2 Working pressure of plate by rules 224 lbs  
 Diameter of tubes 3 1/4" Pitch of tubes 4 3/8 x 4 1/2 Material of tube plates Steel Thickness: Front 1/8" Back 13/16" Mean pitch of stays 11 1/4 x 8 3/4  
 Pitch across wide water spaces 14 1/4 x 8 3/4 Working pressures by rules 184 lbs Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 2 @ 8 1/4 x 3 1/4 Length as per rule 2'6 1/8" Distance apart 8 1/8" Number and pitch of stays in each 3 @ 8"  
 Working pressure by rules 215 lbs Steam dome: description of joint to shell none % of strength of joint yes  
 Diameter 19 1/2" Thickness of shell plates 1 1/8" Material Steel Description of longitudinal joint weld Diam. of rivet holes 1 1/4"  
 Pitch of rivets 8 3/8" Working pressure of shell by rules 180 lbs Crown plates yes Thickness 1 1/8" How stayed yes

**SUPERHEATER.** Type none Date of Approval of Plan none Tested by Hydraulic Pressure to none  
 Date of Test none Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler yes  
 Diameter of Safety Valves none Pressure to which each is adjusted none Is Easing Gear fitted yes



IS A DONKEY BOILER FITTED? no

If so, is a report now forwarded? ✓

SPARE GEAR. State the articles supplied:— 4 wrench bolts & nuts for 5p + bottom ends & main bearings. One set coupling bolts, One set valves for each donkey pump. 2 sets feed & bilge pp valves. One set packing rings for HP & LP pistons. One top end & one bottom end con rod bush. 2 ecc straps one pair pump link brasses of each size. 2 cond tubes. One air & one cir pp bucket rod nuts complete 2 sets valves for air & cir pps. One set escape valve springs. 1 Propeller shaft & 2 cast iron propellers. 1 set safety valve springs. 1 set take lids for boiler valves. 2 oil fuel burners & 18 tips. 1 reaction & 1 delivery filter baskets 2 thermometers etc. Quantity of assorted bolts nuts & iron.

The foregoing is a correct description,

FOR HARLAND AND WOLFF, LIMITED,

F. E. Rebeck

Manufacturer.

Dates of Survey while building: During progress of work in shops - - 1924 Nov 27 Dec 8 13 16 31 1925 Jan 5 14 23 30 Feb 6 Mar 6 12 20 25 31 Apr 1 3 6 7 8 9 16 22 23 27 May 4 7 12 14 18 20 28 June 2 9 = 37  
During erection on board vessel - - -  
Total No. of visits

Is the approved plan of main boiler forwarded herewith yes with 1 set of drawings.

Is the approved plan of main boiler forwarded herewith yes with 1 set of drawings.

Is the approved plan of main boiler forwarded herewith yes with 1 set of drawings.

Is the approved plan of main boiler forwarded herewith yes with 1 set of drawings.

Is the approved plan of main boiler forwarded herewith yes with 1 set of drawings.

Dates of Examination of principal parts—Cylinders Slides Covers Pistons Rods  
Connecting rods Crank shaft Thrust shaft Thrust Funnel shafts 17-11-25 Screw shaft 17-11-25 Propeller 6-11-25  
Stern tube 6-11-25 Steam pipes tested 16-11-25 & 18-5-25 Engine and boiler seatings 31-3-25 Engines holding down bolts 2-6-25  
Completion of pumping arrangements 20-5-25 Boilers fixed 18-5-25 Engines tried under steam 9-6-25  
Completion of fitting sea connections 1-11-25 Stern tube 22-11-25 Screw shaft and propeller 22-11-25  
Main boiler safety valves adjusted 28-5-25 Thickness of adjusting washers P.Bh P 13/32 5 13/32 Stand Bh P 1/2 5 3/4  
Material of Crank shaft ✓ Identification Mark on Do. ✓ Material of Thrust shaft Steel Identification Mark on Do. Y01WB  
Material of Tunnel shafts Iron Identification Marks on Do. ✓ Material of Screw shafts Steel Identification Marks on Do. 646WB  
Material of Steam Pipes Solid drawn copper 1 1/2 x 6 ucl. Test pressure 360 lbs.  
Is an installation fitted for burning oil fuel yes Is the flash point of the oil to be used over 150°F. yes  
Have the requirements of Section 49 of the Rules been complied with yes  
Is this machinery duplicate of a previous case yes If so, state name of vessel Y.S.S. Inverrosa & Inverlago.

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

The Machinery of this vessel has been built under Special Survey. Materials & Workmanship good. Hydraulic tests satisfactory. The whole of the Machinery is efficiently installed & fixed in the vessel & has been tried under steam & is in good & safe working condition & eligible in my opinion to be classed and have records **LMC**. 6-25 Yail shafts C.L. Ebbet St. Fitted for oil fuel 6-25 Flash Point above 150°F.

It is submitted that this vessel is eligible for THE RECORD. + LMC 6.25. CL.

Fitted for oil fuel 6.25. F.P. above 150°F.

Signature of William R. Dutton, Engineer Surveyor to Lloyd's Register of Shipping, dated 19/6/25.

Certificates (if required) to be sent to the Surveyors are requested not to write on or below the space for Committee's Minute.

The amount of Entry Fee ... £ Charged in Dogger When applied for, ... £ 29 : 8 : 0 10 June 1925  
Special Electric Light Donkey Boiler Fee ... £ 10 : 0 : 0 When received, ... £ 25 : 0 : 0  
Travelling Expenses (if any) £ ✓

Committee's Minute Assigned

TUES. 23 JUN 1925

+ Lmc 6.25 CL Fitted for oil fuel 6.25 F.P. above 150°F

