

REPORT ON MACHINERY.

Received at London Office 24 SEP 1924

Date of writing Report 18th Sept. 1924 When handed in at Local Office 20th Sept. 1924 Port of GLASGOW.
 No. in Survey held at Paisley Date, First Survey 7th March Last Survey 15th Sept. 1924
 Reg. Book. on the Steel Screw Steamer "CROMARTY FIRTH" (Number of Visits 15)
 Master ✓ Built at Paisley By whom built Wm. MacLachlan & Co. Ltd. (Nº 411) When built 1924
 Engines made at Aberdeen By whom made A. Hall & Co. Ltd. (Nº 287) when made 1924
 Boilers made at Paisley By whom made Wm. MacLachlan & Co. Ltd. (Nº 412) when made 1924
 Registered Horse Power _____ Owners The Firth Shipping Co. Ltd. (J. J. Gillie & Co. Agents) Port belonging to Glasgow
 Nom. Horse Power as per Section 28 67 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

ENGINES, &c.—Description of Engines Triple Expansion Surface Condensing No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 11", 18" + 30" Length of Stroke 22" Revs. per minute 120 Dia. of Screw shaft _____ as per rule _____ Material of screw shaft _____ as fitted _____
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube _____ Is the after end of the liner made water tight in the propeller boss _____ If the liner is in more than one length are the joints turned _____ 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 _____ If two liners are fitted, is the shaft lapped or protected between the liners _____ Length of stern bush _____
 Dia. of Tunnel shaft _____ as per rule _____ Dia. of Crank shaft journals _____ as per rule _____ Dia. of Crank pin _____ Size of Crank webs _____ Dia. of thrust shaft under collars _____ Dia. of screw _____ Pitch of Screw _____ No. of Blades _____ State whether moveable _____ Total surface _____
 No. of Feed pumps _____ Diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____
 No. of Bilge pumps _____ Diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____
 No. of Donkey Engines One Sizes of Pumps 4 1/2" x 3" x 6" Duplex No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 2 @ 2 1/2" In Holds, &c. 3 @ 2 1/2"

No. of Bilge Injections one sizes 2 3/4" Connected to condenser, or to circulating pump no Is a separate Donkey Suction fitted in Engine room & size yes: 2 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 ✓
 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 3 bilge + 2 ballast pipes How are they protected 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
 Is the Screw Shaft Tunnel watertight ✓ Is it fitted with a watertight door ✓ worked from _____

BOILERS, &c.—(Letter for record S) Manufacturers of Steel W. Beardmore & Co. Ltd. and The Lancashire Steel Co. Ltd.
 Total Heating Surface of Boilers 1315 ft.² Is Forced Draft fitted no No. and Description of Boilers One - Cylindrical Single ended Return Tube
 Working Pressure 180 lbs./in.² Tested by hydraulic pressure to 320 lbs./in.² Date of test 22-7-24 No. of Certificate 16562
 Can each boiler be worked separately ✓ Area of fire grate in each boiler 38.5 ft.² No. and Description of Safety Valves to each boiler 2 - direct spring Area of each valve 4.9 in.² Pressure to which they are adjusted 180 lbs./in.² Are they fitted with easing gear yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 1 foot Mean dia. of boilers 11'-10" Length 10'-0" Material of shell plates steel
 Thickness 1" Range of tensile strength 28/32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams J.R. Lap long. seams T.R.D.B.S. Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 7 5/8" Lap of plates or width of butt straps 1'-3 7/8"
 Per centages of strength of longitudinal joint _____ rivets _____ comb. _____ plate _____ Working pressure of shell by rules 184 lbs. Size of manhole in shell 16" x 12"
 Size of compensating ring 3 1/2" deep No. and Description of Furnaces in each boiler 2 of 9" diameter Material steel Outside diameter 3'-5 1/2"
 Length of plain part _____ top _____ bottom _____ Thickness of plates _____ crown _____ bottom _____ Description of longitudinal joint weld No. of strengthening rings _____
 Working pressure of furnace by the rules 198 lbs. Combustion chamber plates; Material steel Thickness: Sides 2 1/32" Back 21/32" Top 32/32" Bottom 32/32"
 Pitch of stays to ditto: Sides 9" x 9" Back 9" x 9" Top 8 1/2" x 9" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 185 lbs.
 Material of stays steel Area at smallest part 1.73 in.² Area supported by each stay 81 in.² Working pressure by rules 188 lbs. End plates in steam space: Material steel Thickness 1" Pitch of stays 1'-4" x 1'-3" How are stays secured 2 nuts Working pressure by rules 192 lbs. Material of stays steel
 Area at smallest part 5.56 in.² Area supported by each stay 240 in.² Working pressure by rules 243 lbs. Material of Front plates at bottom steel
 Thickness 1" Material of Lower back plate steel Thickness 1" Greatest pitch of stays P.C.D. = 18" Working pressure of plate by rules 286 lbs.
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/4" x 4 1/4" Material of tube plates steel Thickness: Front 1" Back 3/4" Mean pitch of stays 8 1/2" x 8 1/2"
 Pitch across wide water spaces 14 1/4" x 8 1/2" Working pressures by rules 181 lbs. Girders to Chamber tops: Material steel Depth and thickness of girder at centre 2 @ 8" x 5 1/8" Length as per rule 2'-4 1/2" Distance apart 8 1/2" Number and pitch of stays in each 2 @ 9"
 Working pressure by rules 200 lbs. Steam dome: description of joint to shell _____ % of strength of joint _____
 Diameter _____ Thickness of shell plates _____ Material _____ Description of longitudinal joint _____ Diam. of rivet holes _____
 Pitch of rivets _____ Working pressure of shell by rules _____ Crown plates _____ Thickness _____ How stayed _____

SUPERHEATER. Type _____ Date of Approval of Plan _____ Tested by Hydraulic Pressure to _____
 Date of Test _____ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler _____
 Diameter of Safety Valves _____ Pressure to which each is adjusted _____ Is Easing Gear fitted _____

If not, state whether, and when, one will be sent

Is a Report also sent on the Hull of the Ship?

Rpt. 4.
R
Date of
No. in
Reg. 1
Built
Engin
Boiler
Regis
Nom.
ENG.

IS A DONKEY BOILER FITTED? *No* ✓

If so, is a report now forwarded? ✓

SPARE GEAR. State the articles supplied:—
 2 - connecting rod top-end bolts & nuts: ✓
 2 - connecting rod bottom-end bolts & nuts: ✓
 2 - main bearing bolts: ✓
 1 set - coupling bolts ✓
 1 set - each of air circulating feed & bilge pump valves:
 A quantity assorted bolts & nuts; and
 Iron of various sizes.

The foregoing is a correct description,
 BOW, McLAGHLAN & CO., LTD.

John MacLachlan
 Director. Manufacturer.

Dates of Survey while building
 (During progress of work in shops) 1924 Mar 7-13-28 Apr 9-17-19 Jun 4-18-20 July 9-17-22 Aug 19-28 Sep 15
 (During erection on board vessel) 1924 Aug 18-24 Sep 3-8-10-15
 Total No. of visits *20*

Is the approved plan of main boiler forwarded herewith *yes*

* as per Aberdeen Report on Main Engines " donkey " " " *none*

Dates of Examination of principal parts—Cylinders * Slides * Covers * Pistons * Rods *
 Connecting rods * Crank shaft * Thrust shaft * Tunnel shafts ✓ Screw shaft * Propeller *
 Stern tube * Steam pipes tested 19-8-24 Engine and boiler seatings 18-8-24 Engines holding down bolts 8-9-24
 Completion of pumping arrangements 15-9-24 Boilers fixed 8-9-24 Engines tried under steam 15-9-24
 Completion of fitting sea connections 18-8-24 Stern tube { 28-7-24 18-8-24 Screw shaft and propeller 18-8-24
 Main boiler safety valves adjusted 10-9-24 Thickness of adjusting washers 5/16" P. 7/16" S.
 Material of Crank shaft * Identification Mark on Do. * Material of Thrust shaft * Identification Mark on Do. *
 Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts * Identification Marks on Do. *
 Material of Steam Pipes *solid drawn steel* ✓ Test pressure 540 lb./in² ✓
 Is an installation fitted for burning oil fuel *no* ✓ Is the flash point of the oil to be used over 150°F. ✓
 Have the requirements of Section 49 of the Rules been complied with ✓

Is this machinery duplicate of a previous case *no* ✓ If so, state name of vessel ✓
 General Remarks (State quality of workmanship, opinions as to class, &c. *These Engines (Aber. Rpt. 13592) and the Boilers have been built under special survey in accordance with the Rules & the approved plans. The material & workmanship are good. They have been fitted on board and tried under steam with satisfactory results.*
*This machinery is eligible, in my opinion, to be classed in the Register Book with records: L.M.C. - 9.24
 T.S. - CL.*

It is submitted that
 this vessel is eligible for
 THE RECORD. + LMC 9.24. CL.

J.D. Boyle
 26/9/24

The amount of Entry Fee ... £ *Abdn. Rpt.* : When applied for,
 1/5 Special (fitting out) £ 3 : 7/1-23/9/19 24.
 Donkey Boiler Fee ... £ 8 : 16/- When received,
 Travelling Expenses (if any) £ - : - : 29/7/24

J.D. Boyle
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute
 Assigned + L.M.C. 9.24.

CERTIFICATE WRITTEN
 16.10.24



Certificate (if required) to be sent to Glasgow 23 Sep 1924