

Rpt. 5a.

REPORT ON BOILERS.

Received at London Office

-2 SEP 1936

NEWCASTLE-ON-TYNE

Date of writing Report 31st Aug. 1936 When handed in at Local Office 31st Aug. 1936 Port of

No. in Survey held at Newcastle-upon-Tyne Date, First Survey 7 Feb. 1936 Last Survey 27.8. 1936

73221 on the T.S.S. "CLAN MACAULAY" (Number of Visits) Tons {Gross 10448
Net 6406

Master Built at Greenock By whom built Greenock Dockyard Co. Ltd. Yard No. 425 When built 1936

Engines made at Wallsend-upon-Tyne By whom made North Eastern Marine Eng. Co. Ltd. Engine No. 2845 When made 1936

Boilers made at Wallsend-upon-Tyne By whom made North Eastern Marine Eng. Co. Ltd. Boiler No. 2845 When made 1936

Nominal Horse Power 1585 Owners The Clan Line Steamers, Ltd. Port belonging to Glasgow
(Cayzer Irvine & Co., Ltd.)

MULTITUBULAR BOILERS—MAIN, ~~AUXILIARY, OR DONKEY.~~

Manufacturers of Steel The Steel Company of Scotland, Ltd. (Letter for Record S)

Total Heating Surface of Boilers 20142 sq. ft. Is forced draught fitted yes Coal or Oil fired both

No. and Description of Boilers Six Single Ended Working Pressure 220 lbs./sq. in.

Tested by hydraulic pressure to 380 lbs./sq. in. Date of test 10.7.36 No. of Certificate 678 Can each boiler be worked separately yes

Area of Firegrate in each Boiler 78 sq. ft. No. and Description of safety valves to each boiler Two Cockburns Improved High Lift.

Area of each set of valves per boiler {per Rule 8.97 sq. ft. as fitted 9.82 sq. ft. Pressure to which they are adjusted Are they fitted with easing gear

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler

Smallest distance between boilers or uptakes and bunkers or woodwork Is oil fuel carried in the double bottom under boilers

Smallest distance between shell of boiler and tank top plating Is the bottom of the boiler insulated

Largest internal dia. of boilers 16'-11 3/4" Length 12'-0" Shell plates: Material Steel Tensile strength 29/33 tons/sq. in.

Thickness 1 5/8" Are the shell plates welded or flanged no Description of riveting: circ. seams {end DR. Lap
inter.

long. seams T.R.D.B.S. Diameter of rivet holes in {circ. seams 1 5/8"
long. seams 1 5/8" Pitch of rivets {4.3"
11"

Percentage of strength of circ. end seams {plate 62.2
rivets 47 Percentage of strength of circ. intermediate seam {plate
rivets

Percentage of strength of longitudinal joint {plate 85.2
rivets 86.2 Working pressure of shell by Rules 220 lbs./sq. in.
combined 87.7

Thickness of butt straps {outer 1 1/4"
inner 1 3/8" No. and Description of Furnaces in each Boiler 4 Brighton

Material Steel Tensile strength 26/30 tons/sq. in. Smallest outside diameter 3'-7 1/2"

Length of plain part {top
bottom Thickness of plates {crown 2 1/32"
bottom Description of longitudinal joint weld

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 223 lbs./sq. in.

End plates in steam space: Material Steel Tensile strength 26/30 tons/sq. in. Thickness 1 5/16" Pitch of stays 19 1/2" x 18 1/4"

How are stays secured D. Nuts Working pressure by Rules 226 lbs./sq. in.

Tube plates: Material {front Steel
back Tensile strength {26/30 tons/sq. in. Thickness {3/4"

Mean pitch of stay tubes in nests 8 1/2" Pitch across wide water spaces 14 1/4" Working pressure {front 251 lbs./sq. in.
back 278 lbs./sq. in.

Girders to combustion chamber tops: Material Steel Tensile strength 29/33 tons/sq. in. Depth and thickness of girder

at centre 9 1/4" x 2 @ 13/16" Length as per Rule 2'-10 1/2" Distance apart 9 1/4" No. and pitch of stays

in each 2 @ 10 3/8" Working pressure by Rules 222 lbs./sq. in. Combustion chamber plates: Material Steel

Tensile strength 26/30 tons/sq. in. Thickness: Sides 25/32" Back 3/4" Top 25/32" Bottom 25/32"

Pitch of stays to ditto: Sides 9 1/4" x 10 3/8" Back 10 1/4" x 8 5/8" Top 9 1/4" x 10 3/8" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 221 lbs./sq. in. Front plate at bottom: Material Steel Tensile strength 26/30 tons/sq. in.

Thickness 1" Lower back plate: Material Steel Tensile strength 26/30 tons/sq. in. Thickness 29/32"

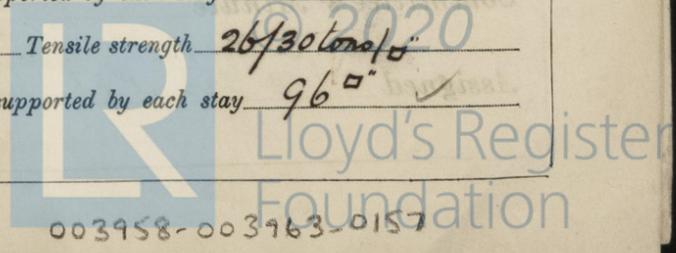
Pitch of stays at wide water space 15" x 8 5/8" Are stays fitted with nuts or riveted over nuts

Working Pressure 225 lbs./sq. in. Main stays: Material Steel Tensile strength 28/32 tons/sq. in.

Diameter {At body of stay, 3"
or
Over threads No. of threads per inch 6 Area supported by each stay 356 sq. in.

Working pressure by Rules 220 lbs./sq. in. Screw stays: Material Steel Tensile strength 26/30 tons/sq. in.

Diameter {At turned off part,
or
Over threads 1 7/8" No. of threads per inch 9 Area supported by each stay 96 sq. in.



Working pressure by Rules 222 lbs/sq. in. Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, - or Over threads 2"

No. of threads per inch 9 Area supported by each stay 108.9 sq. in. Working pressure by Rules 227 lbs/sq. in.

Tubes: Material 40 Steel External diameter { Plain 3" Stay 3" Thickness { 8 L.S. 6 No. of threads per inch 9

Pitch of tubes 4 1/4" x 4 1/4" Working pressure by Rules 250 lbs/sq. in. Manhole compensation: Size of opening in shell plate 21 1/4" x 17 1/4" Section of compensating ring 24" x 1 5/8" No. of rivets and diameter of rivet holes 34 - 1 1/16"

Outer row rivet pitch at ends 11 3/8" Depth of flange if manhole flanged Comp. Ring flanged 4 1/2" Steam Dome: Material None

Tensile strength - Thickness of shell - Description of longitudinal joint -

Diameter of rivet holes - Pitch of rivets - Percentage of strength of joint { Plate - Rivets -

Internal diameter - Working pressure by Rules - Thickness of crown - No. and diameter of stays - Inner radius of crown - Working pressure by Rules -

How connected to shell - Size of doubling plate under dome - Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell -

Type of Superheater R. E. Marine Smoke Tube Type Manufacturers of { Tubes Stewart & Lloyd Steel castings Prodingham Steel Co.

Number of elements 432 Material of tubes 40 Steel Internal diameter and thickness of tubes 17 mm x 2 1/2 mm

Material of headers Forged Steel Tensile strength 26/30 tons/sq. in. Thickness 7/8" Can the superheater be shut off and the boiler be worked separately no Is a safety valve fitted to every part of the superheater which can be shut off from the boiler yes

Area of each safety valve 3.14 sq. in. Are the safety valves fitted with easing gear yes Working pressure as per Rules 220 lbs/sq. in. Pressure to which the safety valves are adjusted - Hydraulic test pressure: tubes 1500 lbs/sq. in. castings Headers 660 lbs/sq. in. and after assembly in place 450 lbs/sq. in. Are drain cocks or valves fitted to free the superheater from water where necessary yes

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with yes

The foregoing is a correct description,
 J.N. THE NORTH EASTERN MARINE ENGINEERING CO. LTD
 John Neill Manufacturer.

Dates of Survey { During progress of work in shops - - } See under report Are the approved plans of boiler and superheater forwarded herewith yes (If not state date of approval.)
 while building { During erection on board vessel - - - } Total No. of visits -

Is this Boiler a duplicate of a previous case yes If so, state Vessel's name and Report No. T.S.S. PERTSHIRE Rpt. No. 93560

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
These boilers have been constructed under special survey in accordance with the Rules and approved plan; the materials and workmanship are good.
The boilers are being forwarded to Greenock to be installed in the vessel.

Survey Fee ... £ See Report on Machinery When applied for, 19
 Travelling Expenses (if any) £ See Report on Machinery When received, 19

A. G. Forster
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 10 NOV 1936 M6
 Assigned See Gen. Rpt. No. 20255

