

REPORT ON BOILERS.

No. 48174

Received at London Office 11/11/1928

Date of writing Report 1928 When handed in at Local Office 7-7-1928 Port of Glasgow

No. in Survey held at Glasgow Date, First Survey 18-11-27 Last Survey 5-7-1928

on the new steel s/s "CUSTODIAN" (Number of Visits 56) Tons {Gross 5843 Net 3695}

Master Built at Glasgow By whom built J. Has Bonnell & Co. Ltd. Yard No. 412 When built 1928

Engines made at Glasgow By whom made David Rowan & Co. Ltd. Engine No. 883 When made 1928

Boilers made at Glasgow By whom made David Rowan & Co. Ltd. Boiler No. 883 When made 1928

Nominal Horse Power 524 Owners T. & J. Harrison Port belonging to Liverpool.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel James Dunlop & Co. Ltd. The Steel Company of Scotland Ltd. (Letter for Record (r))

Total Heating Surface of Boilers 8208 sq ft Is forced draught fitted no Coal or Oil fired coal

No. and Description of Boilers two double ended marine 2 DB Working Pressure 210

Tested by hydraulic pressure to 365 Date of test 22-5-28 No. of Certificate 17916 Can each boiler be worked separately yes

Area of Firegrate in each Boiler 107.5 sq ft No. and Description of safety valves to each boiler two, direct spring

Area of each set of valves per boiler {per Rule 22.80" as fitted 25.120" Pressure to which they are adjusted 215 Are they fitted with easing gear yes

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 15" Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating 2'-7 1/2" Is the bottom of the boiler insulated yes

Smallest internal dia. of boilers 15'-6" Length 17'-6" Shell plates: Material steel Tensile strength 28-32 tons

Thickness 1 1/32" & 1 1/2" Are the shell plates welded or flanged no Description of riveting: circ. seams {end lap DR inter. lap TR

long. seams DBS. TR Diameter of rivet holes in {circ. seams Back & centre 1 1/2" front 1 5/16" Pitch of rivets {Back 4.208 centre 4.313 front 3.428 Outer course 10 5/8" inner courses 10 7/16"

Percentage of strength of circ. end seams {plate B.64.3 F.61.4 rivets B.46 F.44.3 Percentage of strength of circ. intermediate seam {plate 64.4 rivets 69

Percentage of strength of longitudinal joint {plate outer 85.8 inner 85.6 rivets " 85.38 " 88.5 Working pressure of shell by Rules Outer 210 inner 211 combined " 88.8 " 88.9

Thickness of butt straps {outer 1 1/8" inner 1 1/4" No. and Description of Furnaces in each Boiler six Morrison corrugated steel

Material steel Tensile strength 26-30 tons Smallest outside diameter 44.281"

Length of plain part {top bottom Thickness of plates {crown 41" bottom 64" Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 211

End plates in steam space: Material steel Tensile strength 26-30 tons Thickness 1 1/32" Pitch of stays 22" & 21 3/4"

How are stays secured UN Working pressure by Rules 212

Tube plates: Material {front steel back " Tensile strength {26-30 tons Thickness {1" 1 1/32"

Mean pitch of stay tubes in nests 12 3/16" Pitch across wide water spaces 14 1/2" Working pressure {front 226 back 210

Girders to combustion chamber tops: Material steel Tensile strength 28-32 tons Depth and thickness of girder at centre 2 @ 12 1/8" x 7/8" Length as per Rule 45.9375" Distance apart 9 1/4" No. and pitch of stays in each 4 @ 9" Working pressure by Rules 216 Combustion chamber plates: Material steel

Tensile strength 26-30 tons Thickness: Sides 23/32" Back Top 23/32" Bottom 23/32"

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

Working pressure by Rules 218 Front plate at bottom: Material steel Tensile strength 26-30 tons

Thickness 1" Lower back plate: Material Tensile strength Thickness

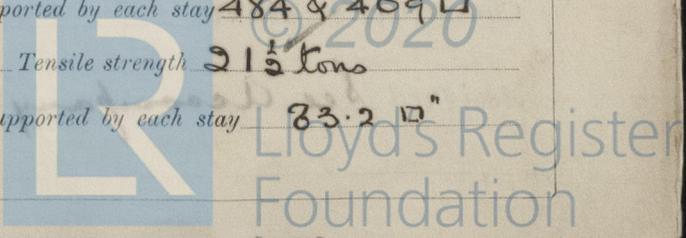
Pitch of stays at wide water space Are stays fitted with nuts or riveted over

Working Pressure Main stays: Material steel Tensile strength 28-32 tons

Diameter {At body of stay, 3 1/2" & 3 1/4" No. of threads per inch 6 Area supported by each stay 484 & 409 sq in

Working pressure by Rules 223 & 226 Screw stays: Material iron Tensile strength 21 1/2 tons

Diameter {At turned off part, 1 3/4" No. of threads per inch 9 Area supported by each stay 83.2 sq in



4712

REPORT ON BOILERS

Working pressure by Rules 218 Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, ✓
 No. of threads per inch W.S. Area supported by each stay W.S. Working pressure by Rules W.S.
 Tubes: Material Iron External diameter { Plain 3 1/2" Thickness { W.S. No. of threads per inch 9
 Pitch of tubes 4 1/8" x 4 1/8" Working pressure by Rules 260 Manhole compensation: Size of opening in shell plate 19 1/2" x 15 1/2"
 Section of compensating ring 8 1/2" x 1 1/2" No. of rivets and diameter of rivet holes 34 @ 1 1/2"
 Outer row rivet pitch at ends 10 5/8" Depth of flange if manhole flanged 3" Steam Dome: Material none
 Tensile strength 518 Thickness of shell W.S. Description of longitudinal joint W.S.
 Diameter of rivet holes 5/8" Pitch of rivets W.S. Percentage of strength of joint { Plate W.S.
 Rivets W.S.
 Internal diameter W.S. Working pressure by Rules W.S. Thickness of crown W.S. No. and diameter of stays W.S.
 Inner radius of crown W.S. Working pressure by Rules W.S.
 How connected to shell W.S. Size of doubling plate under dome W.S. Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell W.S.

Type of Superheater smoke tube Manufacturers of Tubes W.S.
 Number of elements W.S. Material of tubes W.S. Steel castings W.S. Internal diameter and thickness of tubes W.S.
 Material of headers W.S. Tensile strength W.S. Thickness W.S. Can the superheater be shut off and the boiler be worked separately yes
 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 1.760" Are the safety valves fitted with easing gear yes Working pressure as per Rules W.S.
 Pressure to which the safety valves are adjusted 217 Hydraulic test pressure: tubes W.S. and after assembly in place 420 lb Are drain cocks or valves fitted to free the superheater from water where necessary yes
 Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with yes

The foregoing is a correct description,
 For David Rowan & Co. Ltd - Manufacturer.
 Archd. W. Frierson

Dates of Survey { During progress of work in shops - - - See accompanying Machinery Report
 while building { During erection on board vessel - - - See accompanying Machinery Report
 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) W.S.
 Total No. of visits 56

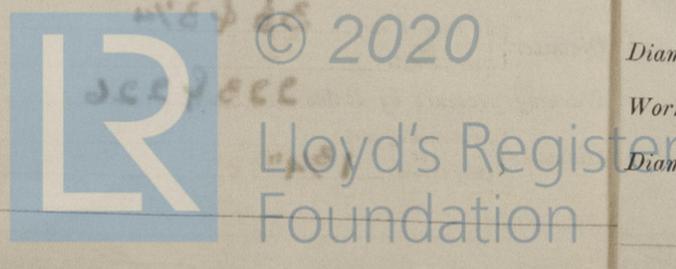
GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
The materials and workmanship are good.
The boilers have been constructed under Special Survey in accordance with the Rules, satisfactorily fitted in the vessel and their safety valves adjusted under steam.

Survey Fee ... £ See Machinery Rpts When applied for, 192
 Travelling Expenses (if any) £ See Machinery Rpts When received, 192

S. Davis
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 10 JUL 1928

Assigned See accompanying Machinery Report



7-7-28