

REPORT ON BOILERS.

No. 104171

Received at London Office

-1 AUG 1934

Date of writing Report July 16th 1934 When handed in at Local Office 28 JULY 1934 Port of LIVERPOOL

No. in Reg. Book. 65305 Survey held at Birkenhead Date, First Survey 24th Jany /34 Last Survey 12th July 1934

on the S/S 'Royal Daffodil II' (Number of Visits 82) Tons {Gross 627.500 Net 226.216}

Master _____ Built at Birkenhead By whom built Cammell Laird & Co Ltd Yard No. 999 When built 1934

Engines made at Birkenhead By whom made Cammell Laird & Co Ltd Engine No. 999 When made 1934

Boilers made at Birkenhead By whom made Cammell Laird & Co Ltd Boiler No. 999 When made 1934

Nominal Horse Power 1824 Owners The Mayor, Aldermen & Burgesses of the Borough of Liverpool Port belonging to Liverpool

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Colville Ltd Glasgow & Frodingham Iron Works Co (Letter for Record S)

Total Heating Surface of Boilers 3123 sq ft Is forced draught fitted no Coal or Oil fired Coal

No. and Description of Boilers Three Multitubular Cylindrical Working Pressure 200 lb sq in

Tested by hydraulic pressure to 350 lb sq in Date of test 16-5-34 No. of Certificate 2420 2421 2422 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 36.68 sq ft No. and Description of safety valves to each boiler Two spring loaded high lift Lt. 3/8/34

Area of each set of valves per boiler {per Rule 3.036 sq ft as fitted 3.534 sq ft} Pressure to which they are adjusted 200 lb sq in 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 open floor Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 10'-7 1/2" Length 11'-8" Shell plates: Material Steel Tensile strength 29-33 tons sq in

Thickness 3 1/32" Are the shell plates welded or flanged no Description of riveting: circ. seams {DR Lap inter. ✓ end ✓}

long. seams Double double butts Diameter of rivet holes in {circ. seams 1 1/16" long. seams 1 1/16"} Pitch of rivets {2.882" 7 3/8"}

Percentage of strength of circ. end seams {plate 63 rivets 50.5} Percentage of strength of circ. intermediate seam {plate ✓ rivets ✓}

Percentage of strength of longitudinal joint {plate 85.6 rivets 92.5 combined 89.6} Working pressure of shell by Rules 205 lb sq in

Thickness of butt straps {outer 3/4" inner 7/8"} No. and Description of Furnaces in each Boiler Two Corrugated

Material Steel Tensile strength 26-30 tons sq in Smallest outside diameter 3'-5 3/16"

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

Dimensions of stiffening rings on furnace or c.c. bottom none Working pressure of furnace by Rules 210 lb sq in

End plates in steam space: Material Steel Tensile strength 26-30 tons sq in Thickness 1" Pitch of stays 15 1/2" x 14 3/4"

How are stays secured Double nuts + small washers Working pressure by Rules 201 lb sq in

Tube plates: Material {front Steel back Steel} Tensile strength {26-30 tons sq in 26-30 tons sq in} Thickness {1" 13/16"}

Mean pitch of stay tubes in nests 10'-8" Pitch across wide water spaces 14" Working pressure {front 245 lb sq in back 204 lb sq in}

Girders to combustion chamber tops: Material Steel Tensile strength 28-32 tons sq in Depth and thickness of girder

at centre 2 plates 7 7/8" x 1" Length as per Rule 2'-10 1/2" Distance apart 7 1/2" No. and pitch of stays

in each 3 @ 8 1/2" Working pressure by Rules 205 lb sq in Combustion chamber plates: Material Steel

Tensile strength 26-30 tons sq in Thickness: Sides 1 1/16" Back 1 1/16" Top 1 1/16" Bottom 1 7/16"

Pitch of stays to ditto: Sides 9' x 8 1/2" Back 9' x 8 1/2" Top 8 1/2' x 7 1/2" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 216 lb sq in Front plate at bottom: Material Steel Tensile strength 26-30 tons sq in

Thickness 1" Lower back plates: Material Steel Tensile strength 26-30 tons sq in Thickness 1"

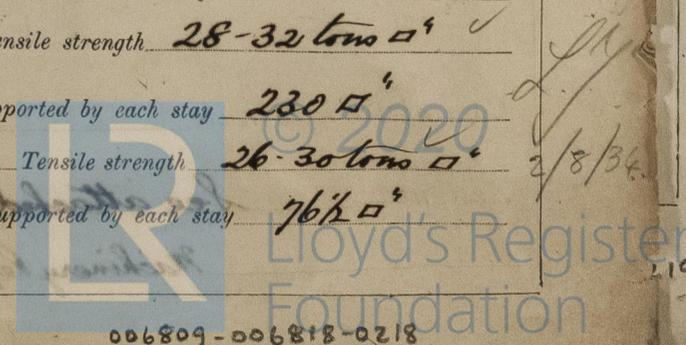
Pitch of stays at wide water space 14' x 8 1/2" Are stays fitted with nuts or riveted over nuts

Working Pressure 308 lb sq in Main stays: Material Steel Tensile strength 28-32 tons sq in

Diameter {At body of stay, 2 5/8" Over threads 2 1/4"} No. of threads per inch 6 Area supported by each stay 230 sq in

Working pressure by Rules 215 lb sq in Screw stays: Material Steel Tensile strength 26-30 tons sq in

Diameter {At turned off part, 1 3/4" Over threads 1 3/4"} No. of threads per inch 9 Area supported by each stay 76 1/2 sq in



Working pressure by Rules **237 1/2** Are the stays drilled at the outer ends **no** Margin stays: Diameter ^(At turned off part) **1 7/8** or Over threads **1 7/8**

No. of threads per inch **9** Area supported by each stay **97**

Tubes: Material **Iron** External diameter ^{Plain} **3 1/2** ^{Stay} **3 1/2** Thickness **1 8/16** Working pressure by Rules **218 1/2**

Pitch of tubes **4 1/16 x 4 9/8** Working pressure by Rules **224 1/2** Manhole compensation: Size of opening in shell plate **16 x 12** Section of compensating ring **flanged inward** No. of rivets and diameter of rivet holes **✓**

Outer row rivet pitch at ends **✓** Depth of flange if manhole flanged **3 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 **✓**

How connected to shell **✓** Inner radius of crown **✓** Working pressure by Rules **✓**

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 **A. S. Marine type** Manufacturers of ^{Tubes} **Weldless Steel Tube Co.** ^{Steel castings} **Nottingham Steel Co.**

Number of elements **66** Material of tubes **Solid drawn steel** Internal diameter and thickness of tubes **1 9/16 - 3 3/16**

Material of headers **Forged steel** Tensile strength **26-30 tons** Thickness **1"** Can the superheater be shut off and the boiler be worked separately **Yes**

Area of each safety valve **177** Is a safety valve fitted to every part of the superheater which can be shut off from the boiler **Yes**

Rules **200 1/2** Pressure to which the safety valves are adjusted **205 1/2** Working pressure as per tubes **157 1/2** castings **66 1/2** and after assembly in place **40 1/2** Hydraulic test pressure: 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**

FOR AND ON BEHALF OF
DANIELL LAIRD & Co. LIMITED,
The foregoing is a correct description.
J. W. Laird Manufacturer.

Dates of Survey ^{During progress of work in shops - -} **See Machinery 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 **No** If so, state Vessel's name and Report No. **✓**

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

These boilers have been constructed under special survey, and are in accordance with the Rules and the approved plan. The workmanship is good. Upon completion and getting on board they were examined under steam and found satisfactory.

Survey Fee ... £ : : When applied for, 19

Travelling Expenses (if any) £ : : When received, 19

J. J. Milton
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **LIVERPOOL 31 JULY 1934**

Assigned **See attached Machinery Report.** *JR*

