

REPORT ON BOILERS.

No. 11233

-6 NOV 1942

Received at London Office

Date of writing Report 23-10-1942 When handed in at Local Office 5-11-1942 Port of Manchester

No. in Survey held at Dukinfield, near Manchester Date, First Survey 8th JUNE, 1942 Last Survey 13th OCTOBER 1942.

(Number of Visits 16)

Tons { Gross
Net

on the

Master Built at By whom built Yard No. When built

Engines made at By whom made Engine No. When made

Boilers made at Dukinfield, near Manchester By whom made Daniel Adamson & Co. Ltd. Boiler No. 102 When made 1942.

Nominal Horse Power 108 Owners New Zealand Government. Port belonging to (For "CASTLE" TYPE TRAWLER.)

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel THE STEEL COMPANY OF SCOTLAND & APPLEBY-FRODINGHAM STEEL CO. (Letter for Record (S) ✓)

Total Heating Surface of Boilers 1620 SQ FT Is forced draught fitted NO Coal or Oil fired COAL

No. and Description of Boilers ONE - SINGLE ENDED CYLINDRICAL MULTITUBULAR BOILER Working Pressure 180 $\frac{1}{2}$ lb/sq inTested by hydraulic pressure to 320 $\frac{1}{2}$ lb/sq in Date of test 9-10-42 No. of Certificate 102 Can each boiler be worked separately ✓Area of Firegrate in each Boiler 48 SQ FT No. and Description of safety valves to each boiler Two 2 $\frac{3}{4}$ DIA. SPRING LOADED (SUPPLIED BUT NOT FITTED).Area of each set of valves per boiler { per Rule 10.4
as fitted 11.88 Pressure to which they are adjusted ✓ 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 ✓ 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 NO

Largest internal dia. of boilers 13'-6" Length 10'-6" Shell plates: Material O.H. STEEL Tensile strength 29/33 TONS/sq in

Thickness 1 $\frac{1}{8}$ " Are the shell plates welded or flanged NO Description of riveting: circ. seams { end D.R. LAP JOINTS
inter. NONElong. seams D.B. STRAP, SRIVETS/PITCH Diameter of rivet holes in { circ. seams 1 $\frac{3}{16}$ "
long. seams 1 $\frac{3}{16}$ " Pitch of rivets { 3-34"
8-0"Percentage of strength of circ. end seams { plate 64.4
rivets 46.8 Percentage of strength of circ. intermediate seam { plate ✓
rivets ✓Percentage of strength of longitudinal joint { plate 85.2
rivets 91.6 Working pressure of shell by Rules 188.2 $\frac{1}{2}$ lb/sq in
combined 88.6Thickness of butt straps { outer 7/8"
inner 1" No. and Description of Furnaces in each Boiler THREE PLAIN FURNACES WITH STEPHEN GOURLAY BACK ENDSMaterial O.H. STEEL Tensile strength 26/30 TONS/sq in Smallest outside diameter 3'-4 $\frac{1}{2}$ "Length of plain part { top 6'-10" FROM RAD. TO RIVET CENTRES
bottom 6'-4 $\frac{1}{2}$ " - do Thickness of plates { crown 25/32"
bottom " Description of longitudinal joint WELDEDDimensions of stiffening rings on furnace or c.c. bottom NONE FITTED Working pressure of furnace by Rules 194.5 $\frac{1}{2}$ lb/sq inEnd plates in steam space: Material O.H. STEEL Tensile strength 26/30 TONS/sq in Thickness 15/32" Pitch of stays 19" AND 18" x 17 $\frac{1}{2}$ "How are stays secured NUTS INSIDE AND OUTSIDE Working pressure by Rules 186.7 $\frac{1}{2}$ lb/sq inTube plates: Material { front O.H. STEEL Tensile strength 26/30 TONS/sq in Thickness 7/8"
back O.H. STEEL Tensile strength 26/30 TONS/sq in Thickness 3/4"Mean pitch of stay tubes in nests 10'-425" Pitch across wide water spaces 14 $\frac{1}{4}$ " Working pressure { front 184.9 AT W.W. SPACE
back 185 IN NESTS

Girders to combustion chamber tops: Material O.H. STEEL Tensile strength 28/32 TONS/sq in Depth and thickness of girder

at centre Two 8" DEEP X 13/16" THICK Length as per Rule 2'-6 $\frac{1}{2}$ " Distance apart 10" No. and pitch of staysin each Two - 9 $\frac{3}{4}$ " PITCH Working pressure by Rules 195.3 $\frac{1}{2}$ lb/sq in Combustion chamber plates: Material O.H. STEEL

Tensile strength 26/30 TONS/sq in Thickness: Sides 21/32" Back 11/16" Top 23/32" Bottom 13/16"

Pitch of stays to ditto: Sides 9 $\frac{3}{4}$ " x 8" Back 10" x 10 $\frac{5}{8}$ " x 8" Top 10" x 9 $\frac{3}{4}$ " Are stays fitted with nuts or riveted over NUTS FITTED.Working pressure by Rules { SIDES 188.8 $\frac{1}{2}$ lb/sq in
BACK 187 "
TOP 186 " Front plate at bottom: Material O.H. STEEL Tensile strength 26/30 TONS/sq in

Thickness 7/8" Lower back plate: Material O.H. STEEL Tensile strength 26/30 TONS/sq in Thickness 13/16"

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

Working Pressure 186.7 $\frac{1}{2}$ lb/sq in Main stays: Material O.H. STEEL Tensile strength 28/32 TONS/sq inDiameter { At body of stay, 2 $\frac{7}{8}$ "
or 2 $\frac{7}{8}$ " No. of threads per inch 6 MAY. Area supported by ANY 324 SQ IN
Over threads 2 $\frac{7}{8}$ "Working pressure by Rules 188.2 $\frac{1}{2}$ lb/sq in Screw stays: Material O.H. STEEL Tensile strength 26/30 TONS/sq inDiameter { At turned off part, 1 $\frac{3}{4}$ "
or 1 $\frac{3}{4}$ " No. of threads per inch 9 MAY. Area supported by ANY 85 sq in
Over threads 1 $\frac{3}{4}$ "

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Working pressure by Rules $213\frac{5}{16}/0$ Are the stays drilled at the outer ends ☒ NO. Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part} \\ \text{or} \\ \text{Over threads} \end{array} \right. 1\frac{1}{8}" \text{ \& } 2" \text{ AT CORNERS}$
No. of threads per inch 9 Area supported by each stay $102.50"$ Working pressure by Rules $208\frac{1}{2}/0$
Tubes: Material WROUGHT IRON External diameter $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. 3\frac{1}{4}"$ Thickness $\left\{ \begin{array}{l} 9 \text{ W.G.} \\ 5/16" \text{ \& } 3/8" \end{array} \right.$ No. of threads per inch 9
Pitch of tubes $4\frac{1}{2}"$ Working pressure by Rules $180\frac{1}{2}/0$ Manhole compensation: Size of opening in
shell plate $16" \times 12"$ Section of compensating ring $8" \times 1\frac{1}{8}"$ No. of rivets and diameter of rivet holes TWENTY EIGHT - $1\frac{3}{16}"$
Outer row rivet pitch at ends $8"$ Depth of flange if manhole flanged $3\frac{1}{4}"$ Steam Dome: Material ☒
Tensile strength ☒ Thickness of shell ☒ Description of longitudinal joint ☒
Diameter of rivet holes ☒ Pitch of rivets ☒ Percentage of strength of joint $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right. \text{ ☒ ☒$
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 ☒ Manufacturers of $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel castings} \end{array} \right. \text{ ☒ ☒$
Number of elements ☒ Material of tubes ☒ Internal diameter and thickness of tubes ☒
Material of headers ☒ Tensile strength ☒ Thickness ☒ Can the superheater be shut off and
the boiler be worked separately ☒ Is a safety valve fitted to every part of the superheater which can be shut off from the boiler ☒
Area of each safety valve ☒ Are the safety valves fitted with easing gear ☒ Working pressure as per
Rules ☒ Pressure to which the safety valves are adjusted ☒ Hydraulic test pressure:
tubes ☒ castings ☒ and after assembly in place ☒ Are drain cocks or valves fitted
to free the superheater from water where necessary ☒

Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with YES WHERE APPLICABLE.

The foregoing is a correct description,
for DANIEL ADAMSON & CO. LIMITED. Manufacturer.
G. Berfoot

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of} \\ \text{work in shops - -} \\ \text{while} \\ \text{building} \end{array} \right. \left\{ \begin{array}{l} 8^{\text{TH}}, 9^{\text{TH}} \text{ \& } 11^{\text{TH}} \text{ JUNE,} \\ 3^{\text{RD}}, 10^{\text{TH}}, 21^{\text{ST}} \text{ JULY, } 7^{\text{TH}}, 11^{\text{TH}}, 25^{\text{TH}}, 31^{\text{ST}} \text{ AUGUST,} \\ 8^{\text{TH}}, 18^{\text{TH}}, 22^{\text{ND}}, 26^{\text{TH}} \text{ SEPT. \& } 9^{\text{TH}}, 13^{\text{TH}} \text{ OCTOBER, } 1942 \end{array} \right.$ Are the approved plans of boiler and superheater forwarded herewith 3-4-42
(If not state date of approval.)
Total No. of visits 16

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

This boiler has been constructed under Special Survey, of tested materials and in accordance with the Secretary's letter, the approved plans, and the requirements of the Rules.

The materials and workmanship are of good quality and the boiler when tested in the shops under an hydraulic pressure of three hundred and twenty pounds per square inch was found sound and tight.

This boiler is, in our opinion, suitable to be fitted on board a vessel classed with this Society and for the purpose intended.

For identification the boiler was stamped on the front end plate at the left hand side as follows:-

NOTE. This boiler has been dispatched to Liverpool for shipment to New Zealand.

Survey Fee ... £ 10 : 16 : 0 | When applied for, 2nd Nov 1942.
Travelling Expenses (if any) £ 1 : 10 : 0 | When received, 192

**N^o 102
LLOYDS TEST
320 lbs/0"
WP 180 lbs/0"
W.T.M. 9-10-42**

D. Walbury & L. J. Mathison
Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute FRL 18 APR 1947

Assigned See F.E. mch opt



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Foundation