

REPORT ON BOILERS.

No. 21165.

DEC -6 1940

Received at London Office

Date of writing Report 28th Nov. 1940. When handed in at Local Office 29th Nov. 1940. Port of Greenock

No. in Survey held at Reg. Book.

Date, First Survey 11th DECEMBER 1939 Last Survey 24th NOVEMBER 1940.(Number of Visits ☒) Tons { Gross 4680.
Net 3059

on the

COULBEG

Master Built at Port Glasgow. By whom built Messrs Liddings Ltd. Yard No. 938 When built 1940
Engines made at Greenock By whom made Messrs Rankin & Blackmore Ltd. Engine No. 471 When made 1940
Boilers made at Greenock By whom made Messrs Rankin & Blackmore Ltd. Boiler No. 471 When made 1940
Nominal Horse Power 436. Owners The Dornoch Shipping Co. Ltd. Port belonging to Glasgow.

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

Manufacturers of Steel Colvilles Ltd. (Letter for Record S. ☒)
Total Heating Surface of Boilers 5830 sq. ft. Is forced draught fitted Yes Coal or Oil fired Coal.
No. and Description of Boilers 2. S.E. Cylindrical. Working Pressure 220 lbs.
Tested by hydraulic pressure to 380 lbs. Date of test 30/8/40. 4/9/40. No. of Certificate 22/3. Can each boiler be worked separately Yes.
Area of Firegrate in each Boiler 67 sq. ft. No. and Description of safety valves to each boiler 2. Cockburns improved High Lift.
Area of each set of valves per boiler { per Rule 9.4 sq. ft. Pressure to which they are adjusted 220 lbs. Are they fitted with easing gear Yes.
as fitted 11.8 sq. ft.
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 24" Is oil fuel carried in the double bottom under boilers No.
Smallest distance between shell of boiler and tank top plating 26" Is the bottom of the boiler insulated Yes.
Largest internal dia. of boilers 16'-3" Length 12'-0" Shell plates: Material S Tensile strength 29/33 tons
Thickness 1 19/32" Are the shell plates welded or flanged No. Description of riveting: circ. seams { end D.R.
long. seams T.R.D.B.S. Diameter of rivet holes in { circ. seams 1 5/8" Pitch of rivets { 4.23"
Percentage of strength of circ. end seams { plate 61.5 Percentage of strength of circ. intermediate seam { plate =
rivets 48.7 rivets =
Percentage of strength of longitudinal joint { plate 85.3 Working pressure of shell by Rules 226 lbs.
rivets 87.2
combined 88.1
Thickness of butt straps { outer 1 1/4" No. and Description of Furnaces in each Boiler 4 Corrugated. Right Hand Section.
inner 1 3/8" Tensile strength 26/30 tons Smallest outside diameter 3'-5 5/16"
Material S. Thickness of plates { crown 2 1/32" Description of longitudinal joint Weld.
Length of plain part { top Thickness of plates { bottom 2 1/32" Working pressure of furnace by Rules 232 lbs.
Dimensions of stiffening rings on furnace or c.c. bottom Working pressure by Rules 229 lbs.
End plates in steam space: Material S. Tensile strength 26/30 tons Thickness 1 15/32" Pitch of stays 22" x 20"
How are stays secured O. nuts and washers Working pressure by Rules 229 lbs.
Tube plates: Material { front S. Tensile strength 26/30 tons Thickness { 1 3/32" 1 3/16"
back S. Working pressure { front 244 lbs.
Mean pitch of stay tubes in nests 9 3/4" Pitch across wide water spaces 14" Working pressure { back 250 lbs.
Girders to combustion chamber tops: Material S. Tensile strength 29/33 tons Depth and thickness of girder
at centre 10 1/2" x 1 1/2" Length as per Rule 34 7/16" Distance apart 9" No. and pitch of stays
in each 3-8 1/2" Working pressure by Rules 230 lbs. Combustion chamber plates: Material S.
Tensile strength 26/30 tons Thickness: Sides 3/4" Back 3/4" Top 3/4" Bottom 7/8"
Pitch of stays to ditto: Sides 9 1/2" x 8 1/2" Back 9 1/2" x 8 1/2" Top 9 1/2" x 8 1/2" Are stays fitted with nuts or riveted over Nuts
Working pressure by Rules 244 lbs. Front plate at bottom: Material S. Tensile strength 26/30 tons
Thickness 1 1/32" Lower back plate: Material S. Tensile strength 26/30 tons Thickness 1"
Pitch of stays at wide water space 14 1/4" x 9 1/2" Are stays fitted with nuts or riveted over Nuts
Working Pressure 220 lbs. Main stays: Material S. Tensile strength 28/32 tons
Diameter { At body of stay, 3 1/2" No. of threads per inch 6 Area supported by each stay 4/8 sq. ft.
Over threads 226 lbs. Screw stays: Material S. Tensile strength 26/30 tons
Diameter { At turned off part, 1 3/4" No. of threads per inch 9 Area supported by each stay 80 3/4 sq. ft.
Over threads

Working pressure by Rules 225/lbs Are the stays drilled at the outer ends no. Margin stays: Diameter ^{At turned off part,} 2" ^{or} Over threads
No. of threads per inch 9 Area supported by each stay 108 sq" Working pressure by Rules 229/lbs
Tubes: Material N. 1. External diameter ^{Plain} 3" Thickness ^{8. W. G.} 5/16" & 3/8" No. of threads per inch 9
Pitch of tubes 4 1/4" x 4 1/8" Working pressure by Rules 250/lbs Manhole compensation: Size of opening in
shell plate 16" x 12" Section of compensating ring 2'-9" x 2'-6" x 1 1/2" No. of rivets and diameter of rivet holes 28 - 1 5/8"
Outer row rivet pitch at ends _____ Depth of flange if manhole flanged _____ Steam Dome: Material _____
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 Smoke tube Manufacturers of ^{Tubes} Messrs Superheater Co Ltd
^{Steel forgings} Messrs Superheater Co Ltd
^{Steel castings} _____
Number of elements 144 Material of tubes S.S. steel Internal diameter and thickness of tubes 17 1/4" x 2 1/2" 1/4"
Material of headers M.S. billets Tensile strength _____ Thickness 1 1/8" 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 3.14 sq" Are the safety valves fitted with easing gear Yes Working pressure as per
Rules 220/lbs Pressure to which the safety valves are adjusted 220/lbs Hydraulic test pressure: _____
tubes 1000 lbs. forgings and castings 660/lbs and after assembly in place 550/lbs 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,
RANKIN & BLACKMORE LTD.,
M. Caldwell Manufacturer.
Managing Director.

Dates of Survey ^{During progress of} work in shops - -
^{while} During erection on
^{building} board vessel - -

SEE MACHINERY REPORT

Are the approved plans of boiler and superheater forwarded herewith
(If not state date of approval.)
Total No. of visits _____

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. 'AIRCRAFT' GRK. RPT. 21128

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been built
under Special Survey, in accordance with the approved plans. The materials
and workmanship are good. For recommendation please see machinery
Report.

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

Committee's Minute GLASGOW 3 DEC 1940

Assigned SEE ACCOMPANYING MACHINERY REPORT.

M. Caldwell
Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation