

## REPORT ON BOILERS.

No. 21546.

Received at London Office

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Date of writing Report 26<sup>th</sup> AUG 1941. When handed in at Local Office 27<sup>th</sup> AUG. 1941. Port of GREENOCK

No. in Survey held at GREENOCK Date, First Survey 6<sup>th</sup> MAY 1940. Last Survey 19<sup>th</sup> AUGUST 1941.  
 Reg. Book. Supp. 91015 on the SINGLE SCREW "EMPIRE JET" OIL ENG. (Number of Visits ) Tons { Gross 8134 Net 4728

Master Built at Glasgow By whom built Blythwood S.B. & L. Yard No. 63 When built 1941  
 Engines made at Greenock By whom made John G. Kincaid & Co. Ld. Engine No. 4133 When made 1941  
 Boilers made at Greenock By whom made John G. Kincaid & Co. Ld. Boiler No. 4133 When made 1941  
 Nominal Horse Power 490 Owners Ministry of Shipping Port belonging to

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

Manufacturers of Steel The Steel Company of Scotland L<sup>td</sup> (Letter for Record S)  
 Total Heating Surface of Boilers 3302  $\frac{4}{2}$  Is forced draught fitted Yes Exn. Gas Cond or Oil fired Yes  
 No. and Description of Boilers Two cylindrical 21-2-41 2230 Working Pressure 150 lb./sq. in.  
 Tested by hydraulic pressure to 275 lb. Date of test 27-2-41 No. of Certificate 2232 Can each boiler be worked separately Yes  
 Area of Firegrate in each Boiler  $\checkmark$  No. and Description of safety valves to each boiler Two - 2" 14L  
 Area of each set of valves per boiler { per Rule 6.25 as fitted 6.28 Pressure to which they are adjusted 150 lb. Are they fitted with easing gear Yes  
 In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler  $\checkmark$   
 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 Boilers on upper deck in ER Is the bottom of the boiler insulated Yes  
 Largest internal dia. of boilers 12'-5 $\frac{1}{8}$ " Length 11'-0" Shell plates: Material S Tensile strength 29/33  
 Thickness 7/8" Are the shell plates welded or flanged No Description of riveting: circ. seams { end DR inter.  $\checkmark$   
 Long. seams T.R. DBS Diameter of rivet holes in { circ. seams 15/16 long. seams 15/16 Pitch of rivets { 2.873" 6.75"  
 Percentage of strength of circ. end seams { plate 67.4% rivets 43.7% Percentage of strength of circ. intermediate seam { plate 86% rivets 86.8% combined 89.6% Working pressure of shell by Rules 158 lb.  
 Percentage of strength of longitudinal joint { plate 86% rivets 86.8% combined 89.6%  
 Thickness of butt straps { outer 2 1/32 inner 25/32 No. and Description of Furnaces in each Boiler Two Dighton  
 Material S Tensile strength 26/30 Smallest outside diameter 3'-9"  
 Length of plain part { top  $\checkmark$  bottom Thickness of plates { crown 1/2 bottom Description of longitudinal joint Weld  
 Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 160 lb.  
 End plates in steam space: Material S Tensile strength 26/30 Thickness 1 1/32 Pitch of stays 19" x 16 1/2"  
 How are stays secured D.N. Working pressure by Rules 154 lb.  
 Tube plates: Material { front S back Tensile strength { 26/30 Thickness { 15/16 1 1/16  
 Mean pitch of stay tubes in nests 9.5" Pitch across wide water spaces 13 1/2" Working pressure { front 183.25 lb back 185.0 lb  
 Girders to combustion chamber tops: Material S Tensile strength 29/33 tons Depth and thickness of girder  
 at centre 8 3/4" x 1 1/2" Length as per Rule 2'-9 1/16" Distance apart 8 1/2" No. and pitch of stays  
 in each 3 @ 8" Working pressure by Rules 192 lb. Combustion chamber plates: Material S  
 Tensile strength 26/30 tons Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 3/4"  
 Pitch of stays to ditto: Sides 8 x 9" Back 9 x 9" Top 8 x 8 1/2" Are stays fitted with nuts or riveted over Nuts  
 Working pressure by Rules 167 lb. Front plate at bottom: Material S Tensile strength 26/30  
 Thickness 15/16 Lower back plate: Material S Tensile strength 26/30 Thickness 7/8  
 Pitch of stays at wide water space 14" Are stays fitted with nuts or riveted over Nuts  
 Working Pressure 156 lb. Main stays: Material S Tensile strength 28/32 tons  
 Diameter { At body of stay, 2 1/2" No. of threads per inch 6 Area supported by each stay 313.5 sq. in.  
 Working pressure by Rules 170 lb. Screw stays: Material S Tensile strength 26/30 tons  
 Diameter { At turned off part, 1 1/2" & 1 5/8" No. of threads per inch 9 Area supported by each stay 72 sq. in. & 51 sq. in.

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Lloyd's Register  
Foundation



Working pressure by Rules 174 lb Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part, 1 3/4" or Over threads

No. of threads per inch 9 Area supported by each stay 103.5" Working pressure by Rules 175 lb

Tubes: Material S External diameter { Plain 2 1/2" Stay 2 1/2" Thickness { 9/16" 1 1/32" No. of threads per inch 9

Pitch of tubes 3 7/8" x 3 3/4" Working pressure by Rules 250 lb Manhole compensation: Size of opening in shell plate 20 x 16" Section of compensating ring 2'5" x 2'9" x 1" No. of rivets and diameter of rivet holes 38 @ 1 1/2"

Outer row rivet pitch at ends 8" 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          Manufacturers of Tubes { Steel forgings Steel castings

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          forgings and 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 22 inclusive for boilers been complied with         

The foregoing is a correct description,  
For JOHN G. KINCAID & CO. LTD. McCauley Director Manufacturer.

Dates of Survey { During progress of work in shops - - }  
while building { During erection on 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. DENBYDALE GRK 71 N° 21284

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

These boilers have been built under Special survey in accordance with the Rules and approved plans. The materials & workmanship are sound & good. The safety valves have been adjusted under steam, accumulation nil. These boilers are eligible in my opinion to be fitted in a vessel Classed in the Society Register Book.

Survey Fee ... £          When applied for, 19

Travelling Expenses (if any) £          When received, 19

See machinery report

Charles H. Wether  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 2 SEP 1941

Assigned SEE ACCOMPANYING MACHINERY REPORT