

# REPORT ON BOILERS.

No. 101831

31 JAN 1944

Received at London Office

Date of writing Report 21/1/44 19 21/1/44 19 When handed in at Local Office Port of NEWCASTLE-ON-TYNE

No. in Reg. Book. 23469 on the M.V. "EMPIRE. INVENTOR" Survey held at Wallsend. Date, First Survey 15<sup>th</sup> January 1943 Last Survey 17<sup>th</sup> January 1944

(Number of visits 10) Gross Tons 3 Net Tons 3045

Built at Sunderland By whom built Sir J. Laing & Son Ltd Yard No. 749 When built 1944

Engines made at Wallsend By whom made N.E. Marine Eng Co (1938) Ltd Engine No. 3034 When made 1944

Boilers made at " By whom made " Boiler No. 3045 When made 1944

Nominal Horse Power " Owners Ministry of War Transport Port belonging to Sunderland

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Steel Co of Scotland Ltd (Letter for Record S)

Total Heating Surface of Boilers 4076 sq ft Is forced draught fitted yes Coal or Oil fired oil

No. and Description of Boilers 2 DB Working Pressure 180

Tested by hydraulic pressure to 320 Date of test 22.6.43 No. of Certificate 1048 Can each boiler be worked separately yes

Area of Firegrate in each Boiler ✓ No. and Description of safety valves to each boiler 1 Double

Area of each set of valves per boiler {per Rule 13.2 as fitted 14.14 Pressure to which they are adjusted 185 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 yes

Largest internal dia. of boilers 12-9 15/16 Length 11'-6" Shell plates: Material S Tensile strength 29-33

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

long. seams T.R. DBS. Diameter of rivet holes in {circ. seams 1 1/8" long. seams 1 1/8" Pitch of rivets {3/4 7 13/16

Percentage of strength of circ. end seams {plate 65.3 rivets 47.0 Percentage of strength of circ. intermediate seam {plate 85.6 rivets 91.4

Percentage of strength of longitudinal joint {plate 85.6 rivets 91.4 combined 89.5

Thickness of butt straps {outer 13/16" inner 15/16" No. and Description of Furnaces in each Boiler 3 cf.

Material S Tensile strength 26-30 Smallest outside diameter 2'-8 1/2"

Length of plain part {top ✓ bottom ✓ Thickness of plates {crown 7/16" bottom 7/16" Description of longitudinal joint weld

Dimensions of stiffening rings on furnace or c.e. bottom ✓

End plates in steam space: Material S Tensile strength 26-30 Thickness 1 1/4" Pitch of stays 18" x 19"

How are stays secured Double nuts

Tube plates: Material {front S back S Tensile strength {26-30 Thickness {29/32" 27/32"

Mean pitch of stay tubes in nests 10 1/4" Pitch across wide water spaces 14 1/2" x 8"

Girders to combustion chamber tops: Material S Tensile strength 29.33 Depth and thickness of girder

at centre 7 1/2" x 2 5/32 Dble Length as per Rule 2'-6" Distance apart 9" No. and pitch of stays

in each 2 at 9" Combustion chamber plates: Material S

Tensile strength 26-30 Thickness: Sides 2 1/32" Back 2 3/32" Top 2 1/32" Bottom 2 1/32"

Pitch of stays to ditto: Sides 9x9" Back 10x10" Top 9x9" Are stays fitted with nuts or riveted over nuts

Front plate at bottom: Material S Tensile strength 26-30

Thickness 29/32" Lower back plate: Material S Tensile strength 26-30 Thickness 7/8"

Pitch of stays at wide water space 14 1/2" x 10" Are stays fitted with nuts or riveted over nuts

Main stays: Material S Tensile strength 28-32

Diameter {At body of stay 3" or Over threads 3 1/4" No. of threads per inch 6

Screw stays: Material S Tensile strength 26-30

Diameter {At turned off part 1 5/8" or Over threads 1 3/4" No. of threads per inch 9



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Are the stays drilled at the outer ends no. ✓ Margin stays: Diameter { At turned off part, ✓  
 or Over threads 2 ✓  
 No. of threads per inch 9 ✓  
 Tubes: Material SD Steel External diameter { Plain 2 3/4 ✓ Thickness { 9 W 9 ✓ No. of threads per inch 9 ✓  
 Stay 2 3/4 ✓ 3/8 x 9/16 ✓  
 Pitch of tubes 4" x 4" ✓ Manhole compensation: Size of opening in  
 shell plate none Section of compensating ring No. of rivets and diameter of rivet holes  
 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 Thickness of crown No. and diameter of  
 stays Inner radius of crown  
 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 none 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 casing gear  
 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 yes.

THE NORTH BRITISH STEAM ENGINEERING CO. (1938) LTD.

John Neill Manufacturer.

Manufacturer.

DIRECTOR.

Dates of Survey { During progress of work in shops - -  
 while building { During erection on board vessel - - -  
 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)  
 Total No. of visits 10 approx.

Is this Boiler a duplicate of a previous case yes. If so, state Vessel's name and Report No. Empire Alliance

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These donkey boilers have been constructed & installed under Special Survey in accordance with the approved Plan the Requirements of the Rules & the Specification

The materials & workmanship are good, & the boilers proved sound & tight under hydraulic test & satisfactory under steam

Survey Fee ... .. £ See Mehy Report When applied for, 19  
 Travelling Expenses (if any) £ When received, 19

R. C. Hoffitt  
 Engineer Surveyor Lloyd's Register of Shipping.

Committee's Minute FRI. 25 FEB 1944  
 Assigned See fe machy n. 33876

