

REPORT ON BOILERS.

No. 120372

23 DEC 1943

Received at London Office

Date of writing Report 24/11/43 When handed in at Local Office 24 DEC 1943 to Port of Liverpool

No. in Reg. Book. Survey held at Birkenhead Date, First Survey 26/11/41 Last Survey 25/11/43

on the M.A.C. EMPIRE MACCOLL (Number of Visits 96) Gross 9133 Tons Net 4830

Master Birkenhead Built at Birkenhead By whom built Cammell Laird & Co Yard No. 1106 When built 1943

Engines made at Glasgow By whom made Harland Wolff & Co Engine No. 8457 When made 1943

Boilers made at Birkenhead By whom made Cammell Laird & Co Boiler No. 1106 When made 1943

Nominal Horse Power _____ Owners _____ Port belonging to _____

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Colvilles Ltd (Letter for Record (S))

Total Heating Surface of Boilers 3700 sq ft Is forced draught fitted yes Coal or Oil fired oil

No. and Description of Boilers 2 SE Exhaust Gas - oil fired Working Pressure 150 lbs

Tested by hydraulic pressure to 275 lbs Date of test 3/12/42 No. of Certificate 2584/5 Can each boiler be worked separately yes

Area of Firegrate in each Boiler _____ No. and Description of safety valves to each boiler 2 spring loaded Imp. H. Lift

Area of each set of valves per boiler 7.94 sq in Pressure to which they are adjusted 150 lbs Are they fitted with easing gear yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler yes

Smallest distance between boilers or uptakes and bunkers or woodwork will clear Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating on upper flat Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 12' 6" Length 11' 6" Shell plates: Material Steel Tensile strength 29/33 Tons

Thickness 27/32 Are the shell plates welded or flanged NO Description of riveting: circ. seams and D.R.

long. seams T.R. - D.B.S. Diameter of rivet holes in 15" Pitch of rivets 2.632

Percentage of strength of circ. end seams 64 Percentage of strength of circ. intermediate seam 49

Percentage of strength of longitudinal joint 85.5 Working pressure of shell by Rules 151 lbs

Thickness of butt straps 11/16 13/16 No. and Description of Furnaces in each Boiler 2 Morrison Section

Material Steel Tensile strength 26/30 Tons Smallest outside diameter 3' 8 1/2"

Length of plain part 1/2" Thickness of plates 1/2" Description of longitudinal joint weld

Dimensions of stiffening rings on furnace or c.c. bottom _____ Working pressure of furnace by Rules 162 lbs

End plates in steam space: Material Steel Tensile strength 26/30 Tons Thickness 31/32 Pitch of stays 17 1/2" x 15"

How are stays secured D.N. Working pressure by Rules 162 lbs

Tube plates: Material Steel Tensile strength 26/30 Tons Thickness 27/32

Mean pitch of stay tubes in nests _____ Pitch across wide water spaces 13 3/4" Working pressure 195 lbs

Girders to combustion chamber tops: Material Steel Tensile strength 28/32 Tons Depth and thickness of girder _____

at centre 9' x 23/32" double Length as per Rule 34 1/2" Distance apart 9" No. and pitch of stays _____

in each 3 @ 8" Working pressure by Rules 168 lbs Combustion chamber plates: Material Steel

Tensile strength 26/30 Tons Thickness: Sides 11/16" Back 23/32" Top 11/16" Bottom 7/8"

Pitch of stays to ditto: Sides 9" x 8" Back 9 1/8" x 8 5/8" Top 9" x 8" Are stays fitted with nuts or riveted over nuts at back

Working pressure by Rules 152 lbs Front plate at bottom: Material Steel Tensile strength 26/30 Tons

Thickness 27/32 Lower back plate: Material Steel Tensile strength 26/30 Tons Thickness 13/16"

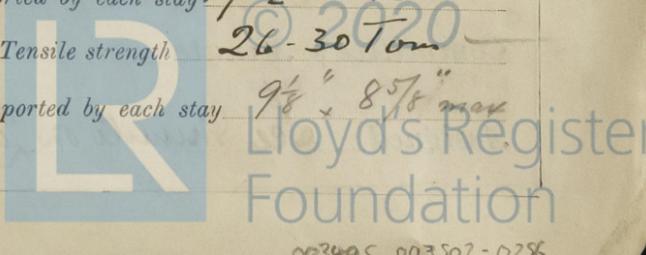
Pitch of stays at wide water space 14 3/4" Are stays fitted with nuts or riveted over nuts

Working Pressure 178 lbs Main stays: Material Steel Tensile strength 28/32 Tons

Diameter 2 1/2" No. of threads per inch 6 Area supported by each stay 17 1/2" x 15"

Working pressure by Rules 168 lbs Screw stays: Material Steel Tensile strength 26/30 Tons

Diameter 1 1/2", 1 3/4", 1 7/8" No. of threads per inch 9 Area supported by each stay 9 1/2" x 8 5/8" max



Working pressure by Rules *159th* Are the stays drilled at the outer ends *no* Margin stays: Diameter *1 1/4* corners *1 7/8*
 No. of threads per inch *9* Area supported by each stay *106.60* Working pressure by Rules *170th*
 Tubes: Material *Iron* External diameter *2 3/4* Thickness *5/16, 3/8* No. of threads per inch *9*
 Pitch of tubes *4" x 3 7/8"* Working pressure by Rules *177th* Manhole compensation: Size of opening in
 shell plate *2 1/4" x 1 1/4"* Section of compensating ring *2-10" x 2-4 1/2" x 1 5/16"* No. of rivets and diameter of rivet holes *54 @ 1 5/16"*
 Outer row rivet pitch at ends *6 1/2"* Depth of flange if manhole flanged *3 1/2"* Steam Dome: Material *Iron*
 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 casing 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,
W. H. Innes *Manufacturers*
 DIRECTOR / ENGINEER / MANAGER

Dates of Survey *During progress of work in shops - -* *See Meby report.* Are the approved plans of boiler and superheater forwarded herewith *Yes.*
 while building *During erection on board vessel - - -* (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. *British Restraint n° 119793*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *These boilers have been built under Special Survey, to approved plans in accordance with the Society's Rules. Materials and workmanship are good. They are installed in the 'Empire MacColl' tried under working conditions & found satisfactory. Safety valves adjusted to 150th."*

Survey Fee *NB* £ *24/12/10* } When applied for, *15 DEC 1913*
 Travelling Expenses (if any) £ : : } When received, *19*

H. Sutherland
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *LIVERPOOL 21 DEC 1913*
 Assigned *See Minute on Liverpool I.E. Machinery Report.*

