

REPORT ON BOILERS.

No. 2926.

Received at London Office

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Date of writing Report 4-3 1943 When handed in at Local Office 25-3 1943 Port of Barrow.

No. in Reg. Book. Survey held at Barrow. Date, First Survey 3-2-42 Last Survey 3-3 1943

on the S/S

"EMPIRE MIRANDA"

(Number of Visits, 27)

Gross Tons
Net

Master Built at Pt. Glasgow By whom built Lickgrove & Co. Ltd. Yard No. 983 When built 1943

Engines made at Glasgow By whom made D. Brown & Co. Ltd. Engine No. 1123 When made 1943

Boilers made at Barrow. By whom made Vickers-Armstrongs Ltd. Boiler No. 848. When made 1943.

Nominal Horse Power 509 510 Owners Ministry of War Transport Port belonging to GREENOCK

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Colville's & Steel Co of Scotland.

(Letter for Record S)

Total Heating Surface of Boilers 7248 sq. ft. Is forced draught fitted Yes. Coal or Oil fired Coal

No. and Description of Boilers 3. S.B. Working Pressure 220 lbs/sq. in.

Tested by hydraulic pressure to 380 lbs/sq. in. Date of test 11.1.43 20.1.43 No. of Certificate 489 490 491 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 54.8 sq. ft. No. and Description of safety valves to each boiler 2 - Improved high lift. Spring loaded.

Area of each set of valves per boiler {per Rule 6.42 sq. in. as fitted 9.82 sq. in. Pressure to which they are adjusted 220 lb. 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 hull clear 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 15' 0 1/16" Length 11' 6" Shell plates: Material Steel Tensile strength 29/33 tons/sq. in.

Thickness 1 15/32" Are the shell plates welded or flanged No Description of riveting: circ. seams {end D.R. lap. inter. Yes

long. seams T.R. - D.B.S. Diameter of rivet holes in {circ. seams 1 31/64" long. seams do. Pitch of rivets {4.07" 10 7/32"

Percentage of strength of circ. end seams {plate 63.5% rivets 45.8% Percentage of strength of circ. intermediate seam {plate 85.4% rivets 88.4%

Percentage of strength of longitudinal joint {plate 85.4% rivets 88.4% combined 88.5% Working pressure of shell by Rules

Thickness of butt straps {outer 1 1/8" inner 1 1/4" No. and Description of Furnaces in each Boiler 3 - cf. Dugton section.

Material Steel Tensile strength 26/30 tons/sq. in. Smallest outside diameter 45 1/4"

Length of plain part {top 0 bottom 0 Thickness of plates {crown 1 1/16" bottom 1 1/16" Description of longitudinal joint Welded.

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

End plates in steam space: Material Steel Tensile strength 26/30 tons/sq. in. Thickness 1 13/32" Pitch of stays 20" x 21"

How are stays secured Nuts inside & out. Working pressure by Rules

Tube plates: Material {front Steel back Steel Tensile strength {26/30 tons/sq. in. do. Thickness {15/16" 25/32"

Mean pitch of stay tubes in nests 9 7/16" Pitch across wide water spaces 14" x 8 1/4" Working pressure {front 26/30 tons/sq. in. back 28/32 tons/sq. in.

Girders to combustion chamber tops: Material Steel Tensile strength 28/32 tons/sq. in. Depth and thickness of girder

at centre 10 1/2" x 1 3/8" (2 x 1 1/16") Length as per Rule 2' 9 7/16" Distance apart 9 1/4" No. and pitch of stays

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

Tensile strength 26/30 tons/sq. in. Thickness: Sides 1 1/16" Back 25/32" Top 1 1/16" Bottom 1 3/16"

Pitch of stays to ditto: Sides 8" x 9 1/4" Back 8" x 9 1/4" Top 8" x 9 1/4" Are stays fitted with nuts or riveted over Nuts.

Working pressure by Rules Front plate at bottom: Material Steel Tensile strength 26/30 tons/sq. in.

Thickness 15/16" Lower back plate: Material Steel Tensile strength 26/30 tons/sq. in. Thickness 27/32"

Pitch of stays at wide water space 14" x 8" Are stays fitted with nuts or riveted over Nuts.

Working Pressure Main stays: Material Steel Tensile strength 28/32 tons/sq. in.

Diameter {At body of stay, 3 1/4" No. of threads per inch 6 Area supported by each stay 420 sq. in.

Working pressure by Rules Screw stays: Material Steel Tensile strength 26/30 tons/sq. in.

Diameter {At turned off part, 1 3/4" No. of threads per inch 9 Area supported by each stay 74 sq. in.

Working pressure by Rules Are the stays drilled at the outer ends *Yes* Margin stays: Diameter { At turned off part, *1 7/8"*
No. of threads per inch *9* Area supported by each stay *93 sq"* Working pressure by Rules
Tubes: Material *Steel* External diameter { Plain *3"* Thickness { *8/16"* No. of threads per inch *9*
Pitch of tubes *4 1/8" x 4 1/4"* Working pressure by Rules Manhole compensation: Size of opening in
shell plate *16" x 12"* Section of compensating ring No. of rivets and diameter of rivet holes
Outer row rivet pitch at ends Depth of flange if manhole flanged *Top 4 1/4" bottom 3 1/4"* Steam Dome: Material *None*
Tensile strength Thickness of shell Description of longitudinal joint
Diameter of rivet holes Pitch of rivets Percentage of strength of joint { Plate
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 *Superheater for B type* Manufacturers of { Tubes *Weldless Steel Tube Co*
Steel forgings *Crusfield Vales*
Steel castings *Croft & Bradford*
Number of elements *47* Material of tubes *Steel* Internal diameter and thickness of tubes *17 1/2" x 2 1/2"*
Material of headers *Forged Steel* Tensile strength *25/29 tons/sq"* Thickness *1"* 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 *1.74 sq"* Are the safety valves fitted with easing gear *Yes* Working pressure as per
Rules *See Man Rpt* Pressure to which the safety valves are adjusted *220 lbs.* Hydraulic test pressure:
tubes *See Man Rpt* forgings and castings *See Man Rpt* and after assembly in place *440 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,
W. Mitchell Manufacturer.

Dates { During progress of *1942*
work in shops - *Feb 3, 20, Mar 2, 3, May 20, July 10, Aug 28, Sep 2*
while building { During erection on board vessel - *Oct 3, 17, 18, Nov 3, 12, 20, 26, Dec 8, 15, 31, Jan 7, 11, 20, 22, 26*
Are the approved plans of boiler and superheater forwarded herewith *Boiler 11.9.41*
(If not state date of approval.) Superheater *See Man Rpt*
Total No. of visits *27*

Is this Boiler a duplicate of a previous case *Yes* If so, state Vessel's name and Report No. *Yes. VA. 84661 Bro Rpt No 2905*

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

These Boilers have been constructed under Special Survey in accordance with the Approved plans, the Rules & the Specification. The workmanship & materials are good & when tested by hydraulic pressure the boilers were found light & satisfactory in every respect. These boilers complete with their mountings, fittings & a set of superheater. Have been dispatched to Messrs. Lithgow & Co. for fitting in the Admiralty vessel No A/M.S. 463. They form part of Admiralty No A/M.S/M. 184 The engines of which are still under construction at Messrs. Vickers-Armstrongs & will not be fitted in the same vessel. These boilers have been satisfactorily installed in the vessel and the safety valves have been adjusted to the working pressure.

W. Mitchell

Survey Fee *(25/50NHA)* 40 : 4 : 0 } When applied for, *26. 3. 1943*
Specification 10 : 1 : 0 }
Travelling Expenses (if any) £ : : } When received, *19*

W. Mitchell
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *GLASGOW 11 MAY 1943*

Assigned *SEE ACCOMPANYING MACHINERY REPORT.*



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