Rpt. 5a.

REPORT ON BOILERS.

No. 69670

Received at London Office 26 JUL 1945

Date of writing Report 19 When handed in at Local Office 20. 7. 1945 Port of GLASGOW.

No. in Reg. Book. Survey held at GLASGOW. Date, First Survey 7. 11. 44 Last Survey 19. 6. 1945 (Number of Visits 32)

on the S.Scw. Oil Tanker "EMPIRE BELGRAVE" Tons Gross 890 Net 382

Master Built at GLASGOW By whom built A & J. INGLIS LTD. Yard No. 1299 When built 1945

Engines made at GLASGOW By whom made BRITISH AUXILIARIES LTD. Engine No. 478 When made 1945

Boilers made at CARFIN By whom made ALEX. ANDERSON & SONS LTD. Boiler No. 3867-8 When made 1945.

Nominal Horse Power 125 Owners Ministry of War Transport Port belonging to Glasgow

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel COLVILLES LTD. (Letter for Record (S))

Total Heating Surface of Boilers 1038 sq.ft. Is forced draught fitted YES. Coal or Oil fired Oil

No. and Description of Boilers 2 - Marine return tube **Working Pressure** 180lbs/sq.in

Tested by hydraulic pressure to 320lbs. Date of test 22:2:45 No. of Certificate 21888 Can each boiler be worked separately Yes.

Area of Firegrate in each Boiler - No. and Description of safety valves to each boiler 1-2" Double spring.

Area of each set of valves per boiler {per Rule 3.33 sq. in. / as fitted 6.28 sq. in.} Pressure to which they are adjusted 180 lbs. 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 20 ins. Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 12 Ins. Is the bottom of the boiler insulated YES.

Largest internal dia. of boilers 8'0" Length 8'0" **Shell plates:** Material Steel Tensile strength 29-33 tons.

Thickness 23/32 Are the shell plates welded or flanged No Description of riveting: circ. seams {end DR / inter. -}

long. seams DR DBS Diameter of rivet holes in {circ. seams 15/16 / long. seams 15/16} Pitch of rivets {2 7/8" / 4.699"}

Percentage of strength of circ. end seams {plate 67.6 / rivets 54.9} Percentage of strength of circ. intermediate seam {plate / rivets -}

Percentage of strength of longitudinal joint {plate 80 / rivets 94.5 / combined -} Working pressure of shell by Rules -

Thickness of butt straps {outer 5/8" / inner 3/4"} **No. and Description of Furnaces in each Boiler** 1 - Morison

Material Steel Tensile strength 26-30 tons Smallest outside diameter 3'5½"

Length of plain part {top - / bottom -} Thickness of plates {crown 17/32" / bottom} 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 26-30tons. Thickness 13/16" Pitch of stays 13" & 14"

How are stays secured Double nuts and riveted doubler Working pressure by Rules -

Tube plates: Material {front / back Steel} Tensile strength {26-30 tons.} Thickness {front 15/16" / back 3/4"}

Mean pitch of stay tubes in nests 10" Pitch across wide water spaces 10½" Working pressure {front / back -}

Girders to combustion chamber tops: Material Steel Tensile strength 28-32 tons. Depth and thickness of girder at centre 2 @ 5/8" x 6" Length as per Rule 20 11/16" Distance apart 7-8" No. and pitch of stays in each 2 @ 7" Working pressure by Rules -

Combustion chamber plates: Material Steel Tensile strength 26-30 tons Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 9/16"

Pitch of stays to ditto: Sides 8" x 7" Back 8" x 7" Top 8" x 7" Are stays fitted with nuts or ~~riveted over~~ Yes.

Working pressure by Rules - **Front plate at bottom:** Material Steel Tensile strength 26-30 tons.

Thickness 13/16 **Lower back plate:** Material Steel Tensile strength 26-30 Thickness 13/16"

Pitch of stays at wide water space - Are stays fitted with nuts or riveted over -

Working Pressure **Main stays:** Material Steel Tensile strength 28-32 tons.

Diameter {At body of stay, or Over threads 2½" / 2½"} No. of threads per inch 6 Area supported by each stay -

Working pressure by Rules - **Screw stays:** Material Steel Tensile strength 26-30 tons.

Diameter {At turned off part, or Over threads - / 1⅝"} No. of threads per inch 9 Area supported by each stay -

W186-010

Working pressure by Rules – *Are the stays drilled at the outer ends* No *Margin stays: Diameter* { *At turned off part, or Over threads* Top 1⅝" } *Working pressure by Rules* –

No. of threads per inch 9 *Area supported by each stay* – *Working pressure by Rules* –

Tubes: *Material* Iron Lapwelded *External diameter* { *Plain* 2½" *Stay* 2½" } *Thickness* { 9 W.G. 5/16"& 3/8" } *No. of threaas per inch* 9

Pitch of tubes 3⅝" *Working pressure by Rules* – **Manhole compensation:** *Size of opening in shell plate* 15½" x 19½" *Section of compensating ring* (6½ x ⅞") 2 *No. of rivets and diameter of rivet holes* 46 - 15/16"

Outer row rivet pitch at ends 4'6" *Depth of flange if manhole flanged* 3" **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* *Rivets* }

Internal diameter *Working pressure by Rules* *Thickness of crown* *No. and diameter stays* *Inner radius of crown* *Working pressure by Rules*

How connected to shell *Size of doubling plate under dome* *Diameter of rivet holes and pit 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 an 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 p Rules* *Pressure to which the safety valves are adjusted* *Hydraulic test pressur tubes* *forgings and castings* *and after assembly in place* *Are drain cocks 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,

ALEX. ANDERSON & SONS LTD.

Per Pro. J. W. C. Fleming *Manufacture*

Dates of Survey while building { *During progress of work in shops* – 1944 Nov 7.29 Dec 14.1945 Jan 4.24 Feb 1.7.19.22 Mar 6.12.14.19.29 Apl 4.12.18 May 3.10.16.23.24.31 ; *During erection on board vessel* – Jun 3.4.6 8.9.13.15.18.19 } *Are the approved plans of boiler and superheater forwarded herewith* (If not state date of approval.)

Total No. of visits 32.

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

GENERAL REMARKS (*State quality of workmanship, opinions as to class, &c.*) These Boilers have been constructed under Special Survey, in accordance with the Society's Rules, the approved plans and the Specification.

The materials and workmanship are good. The boilers have been securely fitted on board the vessel and tried under steam and found satisfactory.

Survey Fee £ 6 : 18 : -
Specification 1 14 6
Travelling Expenses (if any) £ : :

When applied for, 24 JUL 1945 19

When received, 19

for F. R. Dale - L. C. Davis

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 24 JUL 1945

Assigned SEE ACCOMPANYING MACHINERY REPORT