

# REPORT ON BOILERS.

Received at London Office

-8 SEP 1936

Date of writing Report 19 7 Sept 1936 When handed in at Local Office 7 Sept 1936 Port of Belfast

No. in Survey held at Belfast Date, First Survey 12 Feb., 1936 Last Survey 21 Aug 1936

Reg. Book. M.V. "BRITISH POWER" (Number of Visits 21) Gross 8334 Net 4973

Master Govan Built at Govan By whom built Harland & Wolff Ltd Yard No. 968G When built 1936

Engines made at Glasgow By whom made Harland & Wolff Ltd. Engine No. 9689 When made 1936

Boilers made at Belfast By whom made Harland & Wolff Ltd Boiler No. 9689 When made 1936

Nominal Horse Power ✓ Owners British Tanker Co Ltd. Port belonging to London.

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

Manufacturers of Steel Coleville L<sup>d</sup> (Letter for Record S)

Total Heating Surface of Boilers 1495 sq. ft. Is forced draught fitted yes ✓ Coal or Oil fired Oil ✓

No. and Description of Boilers One S.E. cylindrical Working Pressure 150 lbs

Tested by hydraulic pressure to 275 lbs Date of test 31-7-36 No. of Certificate 1021 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 opening High lift (approved) ✓

Area of each set of valves per boiler per Rule 11.325 Pressure to which they are adjusted 150 lbs Are they fitted with easing gear yes ✓  
as fitted 6.28

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 1'-6" Is oil fuel carried in the double bottom under boilers yes ✓  
cross Bunkers

Smallest distance between shell of boiler and tank top plating 1'-6" Is the bottom of the boiler insulated yes ✓

Largest internal dia. of boilers 11'-4 1/32" Length 11'-7" Shell plates: Material Steel Tensile strength 29/33 tons  
double

Thickness 5 1/64" Are the shell plates welded or flanged No. Description of riveting: circ. seams end double  
inter. -

long. seams treble Diameter of rivet holes in circ. seams 1" Pitch of rivets 2.993  
long. seams 15/16" 6 3/8"

Percentage of strength of circ. end seams plate 66.7% Percentage of strength of circ. intermediate seam plate ✓  
rivets 48.4% rivets

Percentage of strength of longitudinal joint plate 85.2% Working pressure of shell by Rules 155 lbs.  
rivets 100.1  
combined 90.6

Thickness of butt straps outer 5/8" No. and Description of Furnaces in each Boiler Two Draught ✓  
inner 3/4"

Material Steel Tensile strength 26/30 Smallest outside diameter 35 7/8"

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

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 174 lbs.

End plates in steam space: Material Steel Tensile strength 24/30 tons Thickness 3/32" Pitch of stays 16 x 16"

How are stays secured Double nuts Working pressure by Rules 168 lbs

Tube plates: Material Steel Tensile strength 24/30 tons Thickness 3/32"  
front 167.5 lbs  
back 13/16" 269 lbs

Mean pitch of stay tubes in nests 9.375" Pitch across wide water spaces 13 1/2" Working pressure front 167.5 lbs  
back 269 lbs

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

at centre 8 3/4" x 1 3/4" Length as per Rule 34 1/2" Distance apart 11 1/2" No. and pitch of stays

in each 3 at 9" Working pressure by Rules 157.3 lbs Combustion chamber plates: Material Steel

Tensile strength 26/30 tons Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 3/16"

Pitch of stays to ditto: Sides 9" x 9" Back 8 3/8" x 8 3/8" Top 9" x 11 1/2" Are stays fitted with nuts or riveted over c.c. centre stays riveted  
over inside, all others  
with nuts

Working pressure by Rules 155 lbs Front plate at bottom: Material Steel Tensile strength 26/30 tons

Thickness 3/32" Lower back plate: Material Steel Tensile strength 26/30 tons Thickness 3/32"

Pitch of stays at wide water space 13 x 8 3/8" Are stays fitted with nuts or riveted over Nuts

Working Pressure 208 lbs Main stays: Material Steel Tensile strength 28/32 tons

Diameter At body of stay, 2 1/2" No. of threads per inch 6 Area supported by each stay 240"  
or  
Over threads

Working pressure by Rules 184.6 lbs Screw stays: Material Steel Tensile strength 26/30 tons

Diameter At turned off part, 1 1/2" No. of threads per inch 9 Area supported by each stay 81" 70.4" 103.5"  
or  
Over threads 1 1/2" 1 5/8" 1 3/4"

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Working pressure by Rules 154-66. Are the stays drilled at the outer ends *No* Margin stays: Diameter  $\left\{ \begin{array}{l} \text{At turned off part, } 1\frac{1}{8}'' \\ \text{Over threads } 1\frac{5}{8}'' \end{array} \right.$

No. of threads per inch *9* Area supported by each stay *89.4* Working pressure by Rules *170 lb*

Tubes: Material *W.I.* External diameter  $\left\{ \begin{array}{l} \text{Plain } 2\frac{1}{2}'' \\ \text{Stay } 2\frac{1}{2}'' \end{array} \right.$  Thickness  $\left\{ \begin{array}{l} 10 \text{ L.S.G.} \\ \frac{1}{4}'' \frac{1}{32}'' \frac{3}{16}'' \end{array} \right.$  No. of threads per inch *9*

Pitch of tubes *3\frac{3}{4} \times 3\frac{3}{4}''* Working pressure by Rules *166.5 lb* Manhole compensation: Size of opening in shell plate *12 \times 16''* Section of compensating ring *2'-8'' \times 3\frac{1}{4}'' \times 3'-0''* No. of rivets and diameter of rivet holes *28 - 1\frac{3}{16}''*

Outer row rivet pitch at ends *9''* Depth of flange if manhole flanged  Steam Dome: Material *Steel*

Tensile strength Thickness of shell Description of longitudinal joint

Diameter of rivet holes Pitch of rivets Percentage of strength of joint  $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right.$

Internal diameter Working pressure by Rules Thickness of crown No. and diameter of stays *83'* 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  $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel castings} \end{array} \right.$

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, 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 HARLAND AND WOLFE, LIMITED  
*A. J. Marshall* Manufacturer,  
 Assistant Secretary.

1936  
 Dates of Survey  $\left\{ \begin{array}{l} \text{During progress of work in shops} \\ \text{During erection on board vessel} \end{array} \right.$   
 Feb 12, Mar 26, May 4, 13, 18, 25, June 3, 18, 22, 20, July 6, 9, 17, 21, 23, 27, 29, 30, 31, Aug 19, 21  
 Are the approved plans of boiler and superheater forwarded herewith *Yes*  
 (If not state date of approval.)  
 Total No. of visits *21*

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

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

*This boiler has been constructed under special survey and to an approved design. The workmanship & materials are good. It has been subjected to a hydraulic test in accordance with the Rules and is eligible, in my opinion for use on a vessel classed with the Society. It is intended for a vessel building at Govan.*

*This boiler has been efficiently secured on board the M.V. "British Power". The safety valves have been adjusted under steam and tested for accumulation of pressure, and the boiler tried under working conditions and found satisfactory.*

*A. H. Campbell,*  
*Glasgow.*

Survey Fee ... £ 10 : 0 : 0 | When applied for, *7<sup>th</sup> Sept* 19 *36*  
 Travelling Expenses (if any) £ : : | When received, *26. 9.* 19 *36*

*Charles J. Hunter*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **GLASGOW** 22 DEC 1936

Assigned SEE ACCOMPANYING MACHINERY REPORT.

