

REPORT ON BOILERS.

Std. No. 33265
No. 17090

Received at London Office

5/9/41

Date of writing Report **23/8/41** When handed in at Local Office **26/8/41** Port of **MIDDLESBROUGH.**

No. in Survey held at **Stockton on Tees** Date, First Survey **28th January**, Last Survey **22/8/41**

on the **"EMPIRE GRENFELL"** (Number of Visits **13**) Gross **7238** Tons Net **5099**

Built at **Sunderland** By whom built **W. Dwyford & Sons Ltd.** Contract No. **648** Yard No. **648** When built **1941**

Engines made at **Sunderland** By whom made **W. Dwyford & Sons Ltd.** Engine No. **648** When made **1941**

Boilers made at **Stockton** By whom made **Stockton C. Engos & Riley** Boiler No. **6483** When made **1941**

Nominal Horse Power _____ Owners **Munitions of War Transport.** Port belonging to _____

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel **Steel Company of Scotland, & Appleby & Donnington Co.** (Letter for Record **S**)

Total Heating Surface of Boilers **1660 sq ft** Is forced draught fitted **no.** Coal or Oil fired **oil.**

No. and Description of Boilers **1 - Single Ended.** Working Pressure **120 lbs**

Tested by hydraulic pressure to **230 lbs** Date of test **22/8/41** No. of Certificate **7027** Can each boiler be worked separately **-**

Area of Firegrate in each Boiler _____ No. and Description of safety valves to each boiler **Two direct Spring.**

Area of each set of valves per boiler { per Rule **15.4.0** as fitted **19.20** Pressure to which they are adjusted **120** 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 **no.**

Smallest distance between shell of boiler and tank top plating **2'-9"** Is the bottom of the boiler insulated **Yes.**

Largest internal dia. of boilers **11'-10 5/8"** Length **11'-6"** Shell plates: Material **Steel** Tensile strength **29-33 tons**

Thickness **11/16"** Are the shell plates welded or flanged **No.** Description of riveting: circ. seams { end **DR.** inter **✓**

long. seams **T.R.D.B.S.** Diameter of rivet holes in { circ. seams **1 1/16"** long. seams **1 3/16"** Pitch of rivets { **3 3/8"** **5 3/8"**

Percentage of strength of circ. end seams { plate **68.51** rivets **45.45** Percentage of strength of circ. intermediate seam { plate **84.88** rivets **83.38**

Percentage of strength of longitudinal joint { plate **89.90** rivets **89.90** combined **89.90**

Thickness of butt straps { outer **9/16"** inner **11/16"** No. and Description of Furnaces in each Boiler **2-barraged (Beighton)**

Material **Steel** Tensile strength **26-30 tons** Smallest outside diameter **3'-8 1/16"**

Length of plain part { top **✓** bottom **✓** Thickness of plates { crown **13/32"** bottom **13/32"** Description of longitudinal joint **Weld**

Dimensions of stiffening rings on furnace or c.c. bottom _____

End plates in steam space: Material **Steel** Tensile strength **26-30 tons** Thickness **27/32"** Pitch of stays **17" x 16"**

How are stays secured **D. Nuts & washers**

Tube plates: Material { front **Steel** back **Steel** Tensile strength { **26-30 tons** Thickness { **27/32"** **13/16"**

Mean pitch of stay tubes in nests **9 13/16"** Pitch across wide water spaces **14"**

Girders to combustion chamber tops: Material **Steel** Tensile strength **28-32 tons** Depth and thickness of girder at centre **7" 20 5/8"** Length as per Rule **29 7/16"** Distance apart **9"** No. and pitch of stays in each **20 9"**

Combustion chamber plates: Material **Steel** Tensile strength **26-30 tons** Thickness: Sides **19/32"** Back **9/16"** Top **19/32"** Bottom **7/8"**

Pitch of stays to ditto: Sides **9" x 10"** Back **9 1/2" x 8 3/4"** Top **9" x 9"** Are stays fitted with nuts or riveted over **Nuts.**

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 **27/32"**

Pitch of stays at wide water space **13 1/2" x 9 1/2"** Are stays fitted with nuts or riveted over **Nuts**

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

Diameter { At top of stay **2 1/4"** Over threads **2 1/4"** No. of threads per inch **6**

Screw stays: Material **Steel** Tensile strength **26-30 tons**

Diameter { At top of part **1 3/8"** Over threads **1 3/8"** No. of threads per inch **9**



Are the stays drilled at the outer ends No. Margin stays: Diameter { At turned off part, or Over threads 15/8"

No. of threads per inch 9

Tubes: Material L.W. Iron External diameter { Plain } 2 3/4" Thickness { 8SWG } No. of threads per inch 9
 { Stay } 5/16"

Pitch of tubes 3 3/4" x 3 3/4" Manhole compensation: Size of opening in shell plate 16" x 20" Section of compensating ring 4" x 1" No. of rivets and diameter of rivet holes 44 - 15/16"

Outer row rivet pitch at ends 6" Depth of flange if manhole flanged 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 _____ 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 _____ 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 easing 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

For and on behalf of Geo W Riley Manufacturer.

STOCKPORT ENGINEERS & BOILER MAKERS

1941

Dates of Survey { During progress of work in shops - - } Jan. 28. Feb. 13. 25. Apr. 9. 30. May 20. 30. June 11. July 4. 9. 14. 25. Aug. 22. Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) Yes

{ During erection on board vessel - - - } _____

Total No. of visits 13.

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. Hub Rpt No 17078

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been constructed under Special Survey, in accordance with the Rule Requirements, & approved plan. The materials & workmanship are good, & on completion the boiler was tested by hydraulic pressure to 230 lbs/sq. & found tight & satisfactory. This boiler is being forwarded to Sunderland for installation in Messrs Tom Doxford's & Sons Ltd. Contract No 678.

This boiler has been securely fixed on board the vessel & safety valves adjusted to working pressure

In recommendation please see Machinery Rpt. Port. Hasen.

Survey Fee ... £ 11 : 2 : - When applied for, 3/9/1941.

Travelling Expenses (if any) £ : : When received, 19

R. J. Hasted
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI, 19 DEC 1941

Assigned See Std. No. 33265



Certificate (if required) to be sent to _____
 If not, state whether, and when, one will be sent? _____
 Is a Report also sent on the Hull of the Ship? _____
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)