

REPORT ON BOILERS.

No. 18108

Date of writing Report 30/11/1941 When handed in at Local Office 30/11/1941 Port of West Hartlepool

No. in Reg. Book. 5.88040 in the Steel Sc. "EMPIRE OIL" Date, First Survey 16th April, 1940 Last Survey 23rd January 1941

(Number of Visits 97)

Gross 5028.79
Tons Net 4676.71

Built at Haverton Hill By whom built Furness Shipbuilding Co. Yard No. 327 When built 1940
Engines made at Hartlepool By whom made Richardsons Westgarth & Co. Engine No. 2701 When made 1940
Boilers made at Hartlepool By whom made " " " Boiler No. 2701 When made 1940
Nominal Horse Power 674 Owners Ministry of Shipping Port belonging to Middlesbrough

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Steel Co. of Scotland & Colvilles Ltd. (Letter for Record S)
Total Heating Surface of Boilers 10020 sq ft Is forced draught fitted Yes Coal or Oil fired oil
No. and Description of Boilers 3 Single ended multitubular Working Pressure 220 LB/sq in
Tested by hydraulic pressure to 380 LB/sq in Date of test 24.12.40 No. of Certificate 3924 Can each boiler be worked separately Yes
Area of Firegrate in each Boiler ✓ No. and Description of safety valves to each boiler 2-2½ "Spring loaded high lift
Area of each set of valves per boiler {per Rule 8.65 sq in as fitted 9.8 sq in Pressure to which they are adjusted 220 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 3'-9" Is oil fuel carried in the double bottom under boilers Yes
Smallest distance between shell of boiler and tank top plating 2'-6" Is the bottom of the boiler insulated Yes
Largest internal dia. of boilers 16'-2 31/32" Length 12'-6" Shell plates: Material Steel Tensile strength 30/34 lbs/sq in
Thickness 1 33/64" Are the shell plates welded or flanged No Description of riveting: circ. seams {end D.R.L. none
long. seams T.R.D.B.S. Diameter of rivet holes in {circ. seams 1 1/2" long. seams 1 9/16" Pitch of rivets {4" 10 1/2"
Percentage of strength of circ. end seams {plate 62.5 rivets 44.7 Percentage of strength of circ. intermediate seam {plate none rivets 85.1
Percentage of strength of longitudinal joint {plate 86.7 rivets 87.5 combined
Thickness of butt straps {outer 1 5/32" inner 1 9/32" No. and Description of Furnaces in each Boiler 3—Beighton Section, four lay necks.
Material Steel Tensile strength 26/30 lbs/sq in Smallest outside diameter 3'-11 23/32"
Length of plain part {top ✓ bottom ✓ Thickness of plates {crown 47/64" Description of longitudinal joint welded
Dimensions of stiffening rings on furnace or c.c. bottom ✓
End plates in steam space: Material Steel Tensile strength 26/30 lbs/sq in Thickness 1 13/32" Pitch of stays 22 1/4" x 18 1/2"
How are stays secured double nuts
Tube plates: Material {front Steel back Steel Tensile strength {26/30 lbs/sq in Thickness {15/16" 7/8"
Mean pitch of stay tubes in nests 9 5/8" Pitch across wide water spaces 14 1/2" x 7 1/4"
Girders to combustion chamber tops: Material Steel Tensile strength 29/33 lbs/sq in Depth and thickness of girder
at centre two 11 3/4" x 1" Length as per Rule 3'-10 1/2" Distance apart 9" No. and pitch of stays
in each 3 @ 11 1/8" Combustion chamber plates: Material Steel
Tensile strength 26/30 lbs/sq in Thickness: Sides 13/16" Back 23/32" Top 13/16" Bottom 29/32"
Pitch of stays to ditto: Sides 9" x 11 1/8" Back 9" x 8" Top 9" x 11 1/8" Are stays fitted with nuts or riveted over nuts
Front plate at bottom: Material Steel Tensile strength 26/30 lbs/sq in Thickness 15/16"
Lower back plate: Material Steel Tensile strength 26/30 lbs/sq in Thickness 15/16"
Pitch of stays at wide water space 15 3/8" x 8" Are stays fitted with nuts or riveted over nuts
Main stays: Material Steel Tensile strength 28/32 lbs/sq in
Diameter {At body of stay, 3 1/2" No. of threads per inch 6
Screw stays: Material Steel Tensile strength 26/30 lbs/sq in
Diameter {At turned off part, 2" + 1 3/4" No. of threads per inch 9

Are the stays drilled at the outer ends No ✓ Margin stays: Diameter { At turned off part, 2" 4/4" Over threads }
No. of threads per inch 9 ✓
Tubes: Material steel External diameter { Plain } 2 1/2" Thickness { 8 L.S.G. } No. of threads per inch 9
Pitch of tubes 4" x 3 5/8" ✓ Section of compensating ring 18 3/8" x 1 33/64" No. of rivets and diameter of rivet holes 34 - 1 9/16"
shell plate 16 1/2" x 20 1/2" ✓ Outer row rivet pitch at ends 10 1/2" Depth of flange if manhole flanged 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 ✓ 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

Type of Superheater Bombusion Chamber Type Supplied by N.E. Morin (1938) ✓ Manufacturers of { Tubes Messrs Talbot Stead
Steel forgings Messrs Stewarts & Lloyds
Steel castings ✓
Number of elements 36 Material of tubes S.D. steel Internal diameter and thickness of tubes 1.273 7 L.S.G.
Material of headers S.D. steel Tensile strength 26/28 lb/sq in Thickness 1" Can the superheater be shut off and
the boiler be worked separately No 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 3.1416 sq. inches Are the safety valves fitted with easing gear Yes
Pressure to which the safety valves are adjusted 220 lb/sq in Hydraulic test pressure:
tubes 1500 LB/sq in ✓ HEADERS 660 LB/sq in and after assembly in place 660 LB/sq in Are drain cocks
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.E. Kington Manufacturer.

Dates { During progress of } Are the approved plans of boiler and superheater forwarded herewith
of Survey { work in shops - - } (If not state date of approval.)
while { During erection on }
surveying { board vessel } Total No. of visits

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. R. & W. Eq. No. 2700 (Rt. 18079)

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 for a working pressure of 220 LB/sq in. The material & workmanship have been found good. Upon completion the boilers were tested in the presence of the undersigned with hydraulic pressure of 380 LB/sq in & found tight & sound. These boilers have been forwarded to Haverton Hill. The boilers securely fitted on board, & found in order. Safety valves adjusted under steam to 220 lb/sq in on completion.

Survey Fee ... £ See Rlt 4 } When applied for, 19
Travelling Expenses (if any) £ : : } When received, 19

R. J. Eastbridge
Clive Bell

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 20 MAY 1941

Assigned

See Indeb. J.E. 17038



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