

Rpt. 5c.

1944

REPORT ON WATER TUBE BOILERS.

MOB. 17765

No. 18588

4 OCT 1944

Received at London Office

Date of writing Report 2/10/1944 When handed in at Local Office 2/10/1944 Port of W. Hartlepool
No. in Survey held at Hartlepool Date, First Survey 28/5/43 Last Survey 16/9/1944
Reg. Bk. 5/5 "WAVE EMPEROR" (Number of Visits 76) Tons { Gross 8196
Net 4566
Built at Haverhill Hill By whom built Furness S.B. Co. 361 When built 1944-12
Engines made at Hartlepool By whom made Richardsons Westgarth & Co. 2448 When made 1944
Boilers made at " By whom made " When made 1944
Nominal Horse Power 1215 Owners Admiralty Port belonging to London

WATER TUBE BOILERS, MAIN, AUXILIARY, OR DONKEY.—Manufacturers of Steel
Date of Approval of plan 18/6/43 Working Pressure 480 LB Tested by Hydraulic Pressure to 740 LB Date of Test 10/2/44
of Boilers 2 Foster Wheeler "N" type Total Heating Surface of Boilers 6840 Sq. ft.
No. of Certificate 4032 Can each boiler be worked separately Yes
Is forced draught fitted Yes Area of fire grate (coal) in each Boiler 3 Wallscend Howden
No. and type of burners (oil) in each boiler 1-2" Single Spring P.H.L. Area of each set of valves 11-1 1" Pressure to which they are adjusted 50.5 lb
each boiler 1-2" Single Spring P.H.L. In case of donkey boilers state whether steam from main boilers can enter the donkey boiler No
Are they fitted with easing gear Yes Height of boiler 15-9 8/16 Width and Length 17-5 3/8 x 11-7 1/8
Smallest distance between boilers or uptakes and bunkers or woodwork 3'-6" Thickness of plates 1 3/8"
Steam Drums:—Number in each boiler one Inside diameter 3'-6" Description of riveting:—
Range of Tensile Strength 28/32 Are drum shell plates welded or flanged welded Pitch of rivets 1"
Cir. seams ✓ long. seams ✓ Diameter of rivet holes in long. seams 1" Rivet 2" = 55.5
Lap of plate or width of butt straps 2" + 1 1/4" Thickness of straps 4 1/2" + 3 1/2" Percentage strength of long. joint:—Plate 1 1/2" = 44.4 Rivet 2" = 55.5
Diameter of tube holes in drum 2" + 1 1/4" Pitch of tube holes 2 1/4" x 2 1/4" x 1 5/8" Percentage strength of shell in way of tubes 1 1/2" = 44.4 50.0% mean
Working pressure by rules as app. **Steam Drum Heads or Ends:**—Range of tensile strength 26/30 Thickness of plates 1 3/8" + 1 1/4"
Radius or how stayed 3'-6" Size of manhole or handhole 16" + 12" Working pressure by rules as app. **Water Drums:**—Number
in each boiler one Inside Diameter 2'-9" Thickness of plates 1 3/8" Range of tensile strength 28/32 Are drum shell plates
welded or flanged welded Description of riveting:—Cir. seams ✓ long. seams ✓ Diameter of rivet holes in
long. seams ✓ Pitch of rivets 1" Lap of plates or width of butt straps 2" + 1 1/4" Thickness of straps 4 1/2" + 3 1/2"
Percentage strength of long. joint:—Plate 2" = 55.5 Rivet 2" = 55.5 Working pressure by rules as app. **Water Drum Heads or Ends:**—Range of
Percentage strength of drum shell in way of tubes 1 1/2" = 44.4 50.0% mean Thickness of plates 1 3/8" Radius or how stayed 2'-9"
Tensile strength 26/30 Working pressure by rules as app. **Headers or Sections:**—Number 3 Tubes:—Diameter 1 1/2"
Size of manhole or handhole 16" + 12" Working pressure by rules as app. **Steam Dome or Collector:**—Description of Joint to Shell
Material Steel Thickness 7/8" Number 384 Tested by Hydraulic Pressure to 740 LB Range of tensile strength ✓
Thickness 1 1/8" Inside diameter ✓ Thickness of shell plates ✓ Diameter of rivet holes ✓ Pitch of rivets ✓ Lap of plate or width of
Description of longitudinal joint ✓ Thickness of straps ✓ Percentage strength of long. joint ✓ Plate ✓ Rivet ✓
butt straps ✓ Working Pressure of shell by rules ✓ Radius or how stayed ✓ **Crown or End Plates:**—Range of tensile strength ✓
Thickness ✓ Working pressure by rules ✓ Inside Diameter 6 1/2" x 6 1/2"

SUPERHEATER.—Drums or Headers:—Number in each boiler 2 Are drum shell plates welded ✓
Thickness 1 1/8" Material steel Range of tensile strength 28/32 long. seams ✓ Diameter of rivet holes in
or flanged weldless Description of riveting:—Cir. seams ✓ long. seams ✓ Thickness of straps 2 1/2" + 1 1/2"
long. seams ✓ Pitch of rivets 1" Lap of plates or width of butt straps 1 1/2" Pitch of tube holes 2 1/2" + 1 1/2"
Percentage strength of long. joint:—Plate ✓ Rivet ✓ Diameter of tube holes in drum 1 1/2" Working pressure by rules as app. **Drum Heads or Ends:**—flat
Percentage strength of drum shell in way of tubes ✓ Working pressure by rules as app. Radius or how stayed 2" Size of manhole or handhole 2"
Thickness 1 1/8" Range of tensile strength 28/32 Radius or how stayed 2" Tested by Hydraulic Pressure to 740 LB
Working pressure by rules as app. Number, diameter, and thickness of tubes 300 - 1 1/2" x 11 1/4" Is a safety valve fitted to each section of the superheater which can be shut off from the boiler ✓
Date of Test 23/6/44 Is easing gear fitted Yes Area of each set of valves 7.96 1"
No. and description of Safety Valves 1-2 1/2" double spring P.H.L. Pressure to which they are adjusted 489 lb
Spare Gear. Has the spare gear required by the rules been supplied appd (Cu Cir. 1810) The foregoing is a correct description, ✓ Manufacturer. Richardsons Westgarth & Co. Limited.

Dates of Survey while building { During progress of work in shops - - - Sept 2.12.43 to 14.12.43 (intermediate dates) Sept 2.7.8.12.16
During erection on board vessel - - - } Total No. of visits 76
Is this boiler a duplicate of a previous case Yes If so, state vessel's name and report No. R.W. 2746
Is the approved plan of boiler forwarded herewith No

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers with their superheaters & economisers have been constructed under Special Survey & in accordance with the approved plans & specifications for a working pressure of 480 LB/SQ. IN.
The workmanship & materials have been found good.

Survey Fee ... £ See Rpt 4a When applied for, 19
Travelling Expenses (if any) £ to follow When received, 19

Committee's Minute FRI. 26 JAN 1945
Assigned Su F.E. machy. rpt.

Clive Bell & Co. Ltd. Surveyors
Engineer Surveyor to Lloyd's Register of Shipping.

Upon completion the boilers, Superheaters ^{port} & economisers were hydraulically tested to 740 lb./sq. in. & found sound & tight.

The boilers have been despatched to Haverton Hill for fitting on board Furness L.B. Co. Vessel No 361

Rpt. 4a will be forwarded when the engines are completed.

The Star^d economiser requires to be hydraulically tested & arrangements have been made for this to be done on board.

The Star^d section of the economiser hydraulically tested to 770 lbs/sq. in. & found satisfactory.

C. Stewart

These boilers have now been securely fitted on board & examined under working conditions & found satisfactory.

On completion the S.V.'s of both boilers were adjusted under steam. The S.V.'s of the drums $\sqrt{15\ 505\ 15\ 10}$ & those of the Superheaters $15\ 495\ 16\ 10$.

to Norman Street

489 lb per
overleaf.

Drums fitted in these Boilers

2 Steam drums No 38/9 Leith Cert. 1361 (fees charged at Lth.)

2 Water " " FW 101/2 Manchester Cert. 2336 (fees charged at Mch. & cert. attached)