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Rpt. 50
6 DEC 1943
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REPORT ON WATER TUBE BOILERS.

Received at London Office

n/dv. 17621

No. 18491

11 DEC 1943

11 APR 1944

Date of writing Report 1/12/1943 When handed in at Local Office 2/12/1943 Port of WEST HARTLEPOOL

No. in Survey held at Reg. Bk. on the S/S "EMPIRE LAW" Date, First Survey 30th October, 1942 Last Survey 25th Nov. 1943 (Number of Visits 73) Gross 8128 Tons Net 4597

Built at Haverston Hill By whom built James LBC (357) When built 1944 3 Engines made at Hartlepool By whom made Richardson Westgarth & Co (2741) When made 1943 Boilers made at " By whom made " (2741) When made 1943 Nominal Horse Power 1215 Owners Ministry of War Transport Port belonging to Middlesbrough

WATER TUBE BOILERS—MAIN, AUXILIARY, OR DONKEY.—Manufacturers of Steel

Date of Approval of plan 18/6/42 Number and Description or Type of Boilers 2 Foster Wheeler D Type Working Pressure 480 LB. Tested by Hydraulic Pressure to 770 LB. Date of Test 12/11/43 No. of Certificate 4015 Can each boiler be worked separately Yes Total Heating Surface of Boilers 6840 sq. ft. Is forced draught fitted Yes Area of fire grate (coal) in each Boiler No. and type of burners (oil) in each boiler 3 Wallend Harder No. and description of safety valves on each boiler 1-2 Single Spring S.H.L. Area of each set of valve 11.1 sq. ft. Pressure to which they are adjusted 490 lb. 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'-6" Height of boiler 15'-9" Width and Length 17'-5 3/8" x 11'-7 1/8" Steam Drums:—Number in each boiler 1 Inside diameter 3'-6" Thickness of plates 1 5/8" 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 Lap of plate or width of butt straps Thickness of straps 4 1/2" x 3 1/2" Percentage strength of long. joint:—Plate Rivet 2" = 55.5% Diameter of tube holes in drum 2" x 1 1/4" Pitch of tube holes 2 1/4" x 2 3/4" x 1 5/8" Percentage strength of shell in way of tubes 1 1/4" = 44.4% Working pressure by rules as app. Steam Drum Heads or Ends:—Range of tensile strength 26/30 Thickness of plates 1 3/8" x 1 1/4" Radius or how stayed 3'-6" Size of manhole or handhole 16" x 12" Working pressure by rules as app. Water Drums:—Number in each boiler 1 Inside Diameter 2'-9" Thickness of plates 1 9/32" 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 Lap of plates or width of butt straps Thickness of straps 4 1/2" x 3 1/2" Percentage strength of long. joint:—Plate Rivet 2" = 55.5% Percentage strength of drum shell in way of tubes 1 1/4" = 44.4% Working pressure by rules as app. Water Drum Heads or Ends:—Range of Tensile strength 26/30 Thickness of plates 1 9/32" Radius or how stayed 2'-9" Headers or Sections:—Number 3 Tubes:—Diameter 2" x 1 1/4" Material steel Thickness 7/8" Tested by Hydraulic Pressure to 770 LB. Steam Dome or Collector:—Description of Joint to Shell Inside diameter Thickness of shell plates Range of tensile strength Description of longitudinal joint Diameter of rivet holes Pitch of rivets Lap of plate or width of butt straps Thickness of straps Percentage strength of long. joint Plate Rivet Working Pressure of shell by rules Crown or End Plates:—Range of tensile strength Thickness Radius or how stayed Working pressure by rules SUPERHEATER. Drums or Headers:—Number in each boiler 2 Inside Diameter 6 1/2" x 6 1/2" Thickness 1 1/8" Material steel Range of tensile strength 28/32 Are drum shell plates welded or flanged weldless Description of riveting:—Cir. seams long. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps Thickness of straps Percentage strength of long. joint:—Plate Rivet 1 1/2" = 44.4% Percentage strength of drum shell in way of tubes Working pressure by rules as app. Drum Heads or Ends:—flat Thickness 1 1/8" Range of tensile strength 28/32 Radius or how stayed Size of manhole or handhole 2" Working pressure by rules as app. Number, diameter, and thickness of tubes 292-1 1/2" x 11/16" Tested by Hydraulic Pressure to 770 LB. Date of Test 3/11/43 Is a safety valve fitted to each section of the superheater which can be shut off from the boiler No. and description of Safety Valves 2 1/2" double spring S.H.L. Area of each set of valves 7.96" Pressure to which they are adjusted 475 lb. Is easing gear fitted Yes FOR RICHARDSONS, WESTGARTH & Co. LIMITED. Spare Gear. Has the spare gear required by the rules been supplied

The foregoing is a correct description,

W. J. Morgan DIRECTOR Manufacturer.

Dates of Survey During progress of work in shops 1942. Oct 30. Nov 2. 5. 12. Dec 9. 15. 17. 22. Jan 8. 12. 15. 24. 26. Feb 1. 6. 8. 17. 19. 24. 26. March 1. 6. 8. 17. 19. 24. 26. April 1. 29. May 1. 18. 19. 24. 26. June 1. 6. 8. 17. 19. 24. 26. July 1. 2. 5. 8. 16. 17. 19. 20. 21. Aug 4. 5. 6. 17. 18. (intermediate dates) Nov 1. 2. 8. 12. 15. 17. 19. 22. 24. 25. Is the approved plan of boiler forwarded herewith NO Total No. of visits 73

Is this boiler a duplicate of a previous case Yes If so, state vessel's name and report No. RW 2740

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 p. 4a : When applied for, 19 Travelling Expenses (if any) £ See p. 4a : When received, 19

Committee's Minute THURS 27 APR 1944

Assigned See p. 4a

Engineer Surveyor to Lloyd's Register of Shipping.



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004275-004284-0256

Upon completion the boilers, Superheaters & economisers were hydraulically tested to $7\frac{1}{2}$ LB./sq. in & found sound & tight.

The boilers have been despatched to Hawerton Hill for fitting on board
Furness S.B. Co. Vessel No 354.

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

These boilers have now been securely fitted on board, the Superheaters having been re. tested, hydraulically, to 770 lbs psi; (owing to 11 elements having been replaced) with satisfactory results.

On completion the Safety Valves of both boilers were adjusted under steam, the Safety Valves of the Steam drums to 490 lbs psi & those of the Superheaters to 475 lbs psi.

L. W. Stuart

Drums fitted in these Boilers

Two Steam drums marked FW 47 & 48	See Mch. C. 1855 (retained for further reference)
One Water " " FW 91	" " C. 1792 (forwarded herewith)
" " " " EW 1060	" Bm C. 2620 (" ")



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