

## REPORT ON WATER TUBE BOILERS.

No. 18897

7 - JAN 1948

Received at London Office

Date of writing Report 5-1-1948 When handed in at Local Office 6-1-1948 Port of West Hartlepool

No. in Survey held at West Hartlepool Date, First Survey 12<sup>th</sup> November, 1947, Last Survey 22<sup>nd</sup> December 1947  
 Reg. Bk. 26812 on the S.S. "ARABIA" (Number of Visits 109) Tons { Gross 8723  
 Net 5001  
 Built at Sunderland By whom built Sir Jas. Laing & Co. Ltd When built 1947  
 Engines made at Hartlepool By whom made Richardson Westgarth & Co. Ltd When made 1947  
 Boilers made at Hartlepool By whom made Richardson Westgarth & Co. Ltd When made 1947  
 Nominal Horse Power 1524 Owners Cunard White Star Ltd Port belonging to Liverpool

**WATER TUBE BOILERS - MAIN, AUXILIARY, OR DONKEY.** Manufacturers of Steel Deums Balfour & Harcourt  
 Tubes Stewart & Lloyd  
 Date of Approval of plan 18-6-42 Number and Description or Type  
 of Boilers 2-D. type water wheels W.T. Working Pressure 490 lb/sq. in. Tested by Hydraulic Pressure to 785 lb/sq. in. Date of Test 7-1-47  
 No. of Certificate 4073. Can each boiler be worked separately? Yes Total Heating Surface of Boilers 7500 sq. ft.  
 Is forced draught fitted? Yes Area of fire grate (coal) in each Boiler 4 Walloind Howden No. and description of safety valves on  
 each boiler 1-2" Cockburn Single High Lift Area of each set of valves per boiler 17-10" Pressure to which they  
 are adjusted 505 lb/sq. in. Are they fitted with easing gear? Yes In case of donkey boilers state whether steam from main boilers can enter  
 the donkey boiler No Smallest distance between boilers or uptakes and bunkers or woodwork Height of boiler 15-9" drum  
 Width and Length 17-5 1/2" x 11-7 1/4" Steam Drums:—Number in each boiler One Inside diameter 3-6"  
 Thickness of plates 1 5/8" Range of Tensile Strength 28-32 tons Are drum shell plates welded  
 or flanged welded If fusion welded, state name of welding firm H. Balfour & Co. Ltd Have all the requirements of the rules  
 for Class I vessels been complied with? Yes Description of riveting:—Cir. seams long. seams  
 Diameter of rivet holes in long. seams Pitch of rivets Thickness of straps Percentage strength of  
 long. joint:—Plate Rivet Diameter of tube holes in drum 2" x 1 1/2" Pitch of tube holes 4 1/2" x 3 1/2" 2 1/2" x 2 1/2"  
 Percentage strength of shell in way of tubes 2 55.5 1 1/2 444 Steam Drum Heads or Ends:—Range of tensile strength 26-30 tons  
 Thickness of plates 1 7/8" x 1 3/4" Radius or how stayed 3-6" Rod. Size of manhole or handhole 16" x 12" Water Drums:—Number  
 in each boiler one Inside Diameter 2-9" Thickness of plates 1 9/32 Range of tensile strength 28-32 tons Are drum shell plates  
 welded or flanged welded If fusion welded, state name of welding firm G. A. Harney & Co. Ltd Have all the requirements of the rules  
 for Class I vessels been complied with? Yes Description of riveting:—Cir. seams long. seam  
 Diameter of rivet holes in long. seams Pitch of rivets Thickness of straps  
 Percentage strength of long. joint:—Plate Rivet Diameter of tube holes in drum 2" x 1 1/2" Pitch of tube holes 4 1/2" x 3 1/2" 2 1/2" x 2 1/2"  
 Percentage strength of drum shell in way of tubes 2 55.5 1 1/2 444 Water Drum Heads or Ends:—Range of Tensile strength 26-30 tons  
 Thickness of plates 1 9/16" Radius or how stayed 2-9" Rod. Size of manhole or handhole 16" x 12"  
**Headers or Sections:—**Number 3 Material Steel Thickness 7/8" Tested by Hydraulic Pressure to 785 lb/sq. in.  
**Tubes:—**Diameter 2" x 1 1/2" Thickness 7/8" + 11/16" Number 384 + 1040 **Steam Dome or Collector:—**Description of  
 Joint to Shell Inside diameter Thickness of shell plates Range of tensile  
 strength Description of longitudinal joint If fusion welded, state name of welding  
 firm Have all the requirements of the rules for Class I vessels been complied with? Diameter of rivet holes  
 Pitch of rivets Thickness of straps Percentage strength of long. joint Plate Rivet  
**Crown or End Plates:—**Range of tensile strength Thickness Radius or how stayed  
**SUPERHEATER. Drums or Headers:—**Number in each boiler 2 Inside Diameter 6 1/2" x 6 1/2" square  
 Thickness 1 1/8" Material Steel Range of tensile strength 28-32 tons Are drum shell plates welded  
 or flanged welded If fusion welded, state name of welding firm Have all the requirements of the rules  
 for Class I vessels been complied with? Description of riveting:—Cir. seams long. seams  
 Diameter of rivet holes in long. seams Pitch of rivets Thickness of straps Percentage strength of  
 long. joint:—Plate Rivet Diameter of tube holes in drum 1 1/4" Pitch of tube holes 2 1/2" x 1 1/2" Percentage strength of  
 drum shell in way of tubes Drum Heads or Ends:—Flat Thickness 1 1/8" Range of tensile strength 28-32 tons  
 Radius or how stayed Size of manhole or handhole 2" Number, diameter, and thickness of tubes 292 - 1 1/2" x 11/16"  
 Tested by Hydraulic Pressure to 785 lb/sq. in. Date of Test 7-1-47 Is a safety valve fitted to each section of the superheater which  
 can be shut off from the boiler? Yes No. and description of Safety Valves One 2 1/2" double opening H. Lift Area of each set  
 of valves 7.96 sq. in. Pressure to which they are adjusted 489 lb/sq. in. Is easing gear fitted? Yes  
 Spare Gear. Has the spare gear required by the rules been supplied? Yes

The foregoing is a correct description,

W. E. Dooresidge Manufacturer.

Dates of Survey { During progress of work in shops - - }  
 while building { During erection on board vessel - - - }

Is the approved plan of boiler forwarded herewith? Yes

Total No. of visits

Is this boiler a duplicate of a previous case? Yes If so, state vessel's name and report No. 3/5 ASIA HPL Rpt No 18819

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.) These boilers, with their superheaters and economisers have been constructed under special survey and in accordance with the approved plans for a working pressure of 490 lb per sq. inch. The materials and workmanship have been found good.

Survey Fee ... £ : ✓ : When applied for, 19  
 Travelling Expenses (if any) £ : ✓ : When received, 19

Committee's Minute

Assigned

FRI. 30 JAN 1948  
Sir F. E. McHugh, rpt.

Engineer Surveyor to Lloyd's Register of Shipping.

Lloyd's Register  
Foundation

611603 - 611609 - 0107



Upon completion the boilers, superheaters and economizers were hydraulic tested to 785 lbs per sq. inch and found tight sound.

E.W. Drums fitted to these boilers

|            |        |          |         |      |
|------------|--------|----------|---------|------|
| Steam Drum | Port   | N° 45    | 3-10-45 | JH.  |
| "          | Starb. | " 41     | 28-9-45 | JH.  |
| Water Drum | Port   | " 19738  | 13-9-44 | ACW  |
| "          | Starb. | " 169711 | 5-4-44  | AJB. |



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