

REPORT ON WATER TUBE BOILERS.

No. 18519

Received at London Office

22 FEB 1944

Date of writing Report 19/2/1944 When handed in at Local Office 21/2/1944 Port of *W. Hartlepool*

No. in Survey held at *Hartlepool* Date, First Survey 17-2-43 Last Survey 18-2-1944

Reg. Bk. on the *S.S. EMPIRE DYNASTY* (Number of Visits 65) Tons Gross Net

Built at *Sunderland* By whom built *J. L. Thompson & Sons (631)* When built 1944

Engines made at *Hartlepool* By whom made *Richardson Westgarth & Co. (2744)* When made 1944

Boilers made at *"* By whom made *"* When made 1944

Nominal Horse Power 1215 Owners Port belonging to

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 *See overleaf* Date of Test

No. of Certificate Can each boiler be worked separately? *Yes* Total Heating Surface of Boilers 6840 Sq. ft. including economiser

Is forced draught fitted? *Yes* Area of fire grate (coal) in each Boiler 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

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 for uptakes and bunkers or woodwork Height of boiler 15'9" Width and Length 17'5" x 11'4"

Steam Drums:—Number in each boiler *one* Inside diameter 3'-6" 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

Lap of plate or width of butt straps Thickness of straps Percentage strength of long. joint:—Plate Rivet

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 1/2" = 55.5

Working pressure by rules as app. Steam Drum Heads or Ends:—Range of tensile strength 26/30 Thickness of plates 1 7/8" x 1 3/4"

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 *one* 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 1 1/4" x 3 1/2"

Percentage strength of long. joint:—Plate Rivet 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 drum shell in way of tubes 1 1/2" = 55.5 Working pressure by rules as app. Water Drum Heads or Ends:—Range of

Tensile strength 26/30 Thickness of plates 1 9/16" Radius or how stayed 2'-9"

Size of manhole or handhole 16" x 12" Working pressure by rules as app. Headers or Sections:—Number 3

Material *steel* Thickness 7/8" Tested by Hydraulic Pressure to 770 LB. Tubes:—Diameter 2" 1 1/4"

Thickness 7/8" 11/4" 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 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 Working pressure by rules

Thickness Radius or how stayed

SUPERHEATER. Drums or Headers:—Number in each boiler 2 Inside Diameter 6 1/4" x 6 1/4"

Thickness 1 1/8" Material *steel* 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 2 1/8" x 1 13/16"

Percentage strength of long. joint:—Plate Rivet Diameter of tube holes in drum 1 1/4" Pitch of tube holes 2 1/8" x 1 13/16"

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" 1 1/8"

Working pressure by rules as app. Number, diameter, and thickness of tubes 300 - 1 1/4" x 11/16" Tested by Hydraulic Pressure to 770 LB.

Date of Test 16/2/44 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 1-2 1/4" double spring S.H.L. Area of each set of valves 7.96 sq. ft.

Pressure to which they are adjusted 480 LB. Is easing gear fitted *Yes*

Spare Gear. Has the spare gear required by the rules been supplied

The foregoing is a correct description,

W. L. Thompson DIRECTOR Manufacturer.

Dates of Survey During progress of work in shops - - - 1943-3-17-24-26-28-30-31- April 1-29 May 14-16-23- June 5-17 July 2-14-19

while building During erection on board vessel - - - 1944-3-4-6-10-11-16-19-27-28-29-31-4-7-8-10-12-14-16-17-18

Total No. of visits 65

Is this boiler a duplicate of a previous case *Yes* If so, state vessel's name and report No. *RW. 2742*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *These boilers are being constructed under Special Survey & in accordance with the approved plans & Specification for a working pressure of 480 LB./sq. in. The materials & workmanship have been found good.*

Survey Fee ... £ See Rpt 4a } When applied for, 19

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

Committee's Minute FRI. 5 JAN 1945

Assigned *Su F.E. machy rpt.*Clive Bell. 2021
Engineer Surveyor to Lloyd's Register of Shipping.Lloyd's Register
Foundation

011628-011635-0271

The boilers have been constructed, as far as practicable, in the Works by fitting of the drums & main banks of tubes (except floor, rear, side & roof).

The economisers have been partly constructed & the construction of the Superheater has been completed. The Superheaters have been hydraulically tested to $7\frac{1}{2}$ LB/SQ. & found satisfactory.

The construction of the main boilers will be completed on board by the fitting of the water wall tubes & leaders & together with the economisers will require to be hydraulically tested to $7\frac{1}{2}$ LB/SQ.

The boilers have been despatched to the Tyne for completion of construction & final erection on board J.L. Thompson & Son Yard No 631. Rpt. 4a will be forwarded when the surveys are completed.

Newcastle on Tyne

These two Foster-Wheeler D type water tube boilers were completed at N.E. Marine Eng. Works, Wallsend on Tyne under special survey.

The Boilers, Economisers & Superheaters were tested by hydraulic pressure on completion to 770 lbs/SQ for 480 lbs W.P. The Safety Valves were adjusted under steam after the boilers were offensively fitted on board.

the 2" SVs on Main Boilers - to 505 lbs for 490 lbs W.P.
the two 2½" SVs on Superheaters to 498 lbs for 475 lbs W.P.
in accordance with Secretary's Letter E dated London 21st Sept.

The materials & workmanship are good and the Boilers were found satisfactory under working conditions.

The Boilers were marked:- Port Boiler No 1100 Starboard Boiler No 1100
Date of test:- 3-4-44 R.M. 3-4-44 R.M. Newcastle

Drums fitted in these boilers

one steam drum marked FW 79 see Mch. C. 1936 (Copy attached)
" " " " EW 1052 " Brm. C. 2653 (Copy attached)
two water drums " FW 93/4 " Mch. C. 1855 (Copy attached)



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