Rpt. 5c.

Mdb. 17523.

REPORT ON WATER TUBE BOILERS.

No. 18422

Received at London Office 7 JUN 1943 - 8 NOV 1943

Date of writing Report 4/6/ 1943 When handed in at Local Office 4/6/ 1943 Port of West Hartlepool

No. in Reg. Bk. Survey held at ... Date, First Survey 9/[illegible]43 Last Survey 24/5/1943

on the S/S "EMPIRE CHIEFTAIN" (Number of Visits) Tons { Gross 9904 Net 8904

Built at Haverton Hill By whom built Furness S.B. Co No 354 When built 1943

Engines made at Hartlepool By whom made Richardson Westgarth & Co No 2438 When made 1943

Boilers made at " By whom made " " " " When made 1943

Nominal Horse Power 1158 Owners Ministry of War Transport. Port belonging to Swaffenbrough.

WATER TUBE BOILERS—MAIN, ~~AUXILIARY, OR DONKEY~~.

Manufacturers of Steel Colvilles Ltd.

Date of Approval of plan 18.6.42 Approved for 480 lb. design pres.

Number and Description or Type of Boilers 2-Foster Wheeler D Type Economisers Working Pressure 470 lb □" Tested by Hydraulic Pressure to 770 lb. Date of Test 6/9/43

No. of Certificate 7098. Can each boiler be worked separately Yes Total Heating Surface of Boilers 6840 Sq. ft. excluding economisers

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

No. and type of burners (oil) in each boiler 3 Wallsend Howden

No. and description of safety valves on each boiler 1-2" Style direct Spring high lift improved Area of each set of valves per boiler { per rule 5 □" as fitted 11.1 □" Pressure to which they are adjusted 475 lb/□"

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 5'-0" Height of boiler 15'-9" (Drum Centre)

Width and Length 17'-5 3/8" x 11'-7 9/16" **Steam Drums:**—Number in each boiler one Inside diameter 3'-6"

Thickness of plates 1 5/8" Range of Tensile Strength 28/32

or flanged welded If fusion welded, state name of welding firm Daniel Adamson & Co Certificates in Order

for Class I vessels been complied with Yes Description of riveting:—Cir. seams ✓ long. seams ✓ Have all the requirements of the rules

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"+1 1/4" Pitch of tube holes 4 1/2"+3 5/8", 2 1/4"+2 3/4"+1 57/64"

Percentage strength of shell in way of tubes 2" = 55.5 / 1 1/4" = 44.4

Thickness of plates 1 7/8" + 1 3/4" Radius or how stayed 3'-6" **Steam Drum Heads or Ends:**—Range of tensile strength 26/30

in each boiler one Inside Diameter 2'-9" Size of manhole or handhole 16"+12" **Water Drums:**—Number

welded or flanged welded If fusion welded, state name of welding firm Daniel Adamson & Co Are drum shell plates

for Class I vessels been complied with Yes Have all the requirements of the rules

Diameter of rivet holes in long. seams ✓ Description of riveting:—Cir. seams ✓ long. seam ✓

Percentage strength of long. joint:—Plate ✓ Rivet ✓ Pitch of rivets ✓ Thickness of straps ✓

Percentage strength of drum shell in way of tubes 2" = 55.5 / 1 1/4" = 44.4 Diameter of tube holes in drum 2"+1 1/4" Pitch of tube holes 4 1/2"+3 5/8", 2 1/4"+2 3/4"+1 57/64"

Thickness of plates 1 9/16" **Water Drum Heads or Ends:**—Range of Tensile strength 26/30

Radius or how stayed 2'-9" Size of manhole or handhole 16"x12"

Headers or Sections:—Number 3 Material Steel Thickness 7/8" Tested by Hydraulic Pressure to 770 lb/□"

Tubes:—Diameter 2" 1 1/4" Thickness 11 G 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 1/4" x 6 1/4"

Thickness 1 1/8" Material Steel Range of tensile strength 28/32 Are drum shell plates welded

or flanged Welded 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 1/8"+1 13/16" Percentage strength of

Drum shell in way of tubes ✓ **Drum Heads or Ends:**—Flat ends Thickness 1 1/8" Range of tensile strength 28/32

Radius or how stayed ✓ Size of manhole or handhole 2" Number, diameter, and thickness of tubes 292 - 1 1/4" + 11 G.

Tested by Hydraulic Pressure to 1500 lb/□" Date of Test 14 & 17 May 1943 Is a safety valve fitted to each section of the superheater which can be "shut off" from the "boiler" 760 ✓" assembled No. and description of Safety Valves 2 1/4" double direct Spring high lift Area of each set of valves 7.96 □" Pressure to which they are adjusted 465 lb/□" Is easing gear fitted Yes

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

The foregoing is a correct description,

For RICHARDSONS, WESTGARTH & Co. LIMITED,

DIRECTOR

Manufacturer.

Dates of Survey while building: During progress of work in shops - - - 1943. Feb 9. March 1.19.30. April 1.5.14.28. May 2.13.17.18.24

During erection on board vessel - - -

Is the approved plan of boiler forwarded herewith

Total No. of visits 13

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

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 470 lb/□". The materials & workmanship have been found good. The boilers have been constructed, as far as practicable, in the Works by the fitting (Contd.)

Survey Fee ... ... £ See Rpt 42 / Travelling Expenses (if any) £ : : } When applied for, 19 When received, 19

Clive Bell, G.W. Stuart.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute signed FRI. 17 DEC 1943 See fc. rpt. Mdb 17523

of the drums & main banks of tube (except floor, rear, side & roof tube).
The two superheaters have been constructed & completed & have been hydraulically tested to 770 lbs/□" & found tight.
The construction will be completed by the setting of the water wall tube headers & the economisers on board the vessel & the whole finally tested under hydraulic pressure, including the economiser to 770 lbs/□", with satisfactory results.
The boilers have been despatched to Howden Hill for completion of construction & final erection on board Messrs Furness S.B. Co. vessel No 354.
Rpt 4a will be forwarded when the engines have been completed.

C.B.

The construction of these boilers was completed on board, & the whole finally tested under hydraulic pressure, including the economiser to 770 lbs/□", with satisfactory results.

On completion the Safety Valves of both boilers were adjusted under steam, the Safety Valves of the steam drum to 475 lbs/□"; & those of the superheater to 465 lbs/□" & satisfactory accumulation tests carried out.

L.H. Blizard