

Rpt. 5c.

REPORT ON WATER TUBE BOILERS.

No. 68623

Received at London Office

Date of writing Report 19 When handed in at Local Office 1. 7. 1944 Port of Glasgow

No. in Survey held at *Renfrew* Date, First Survey 20. 4. 43 Last Survey 27. 6. 1944
 Reg. Bk. *Sing. Sc. H.M.S. OLNA* (Number of Visits 30) Gross 12667
 on the *Boiler intended for Swan Hunter & Co's Yard No. 1689* Tons Net 7737

Built at *Newcastle-on-Tyne* By whom built *Swan Hunter & Co. Ltd.* When built
 Engine's made at *-do-* By whom made *Swan Hunter & Co. Ltd. Eng. No. 1786* When made
 Boilers made at *Renfrew* By whom made *Babcock & Wilcox, Ltd. 6/1680* When made 1944
 Nominal Horse Power Owners Port belonging to

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

Date of Approval of plan 18/3/43 etc. Number and Description of Type *DRUMS* F. 22-8-44.
 of Boilers *3 - Babcock & Wilcox Type* Working Pressure 450 lb. Tested by Hydraulic Pressure to 725 lb. Date of Test 7-11-43 P. 11-8-44.
 IDENTIFICATION NO. 50222 Can each boiler be worked separately YES. Total Heating Surface of Boilers 18,618 sq. ft. S. 3-8-44.
 No. of Certificate 50965 Is forced draught fitted YES. Area of fire grate (coal) in each Boiler OIL BURNING. Spts 2880 sq. TOTAL = 21498 sq.
 No. and type of burners (oil) in each boiler 5. SWINNEYS OIL BURNING SYSTEM. No. and description of safety valves on each boiler 2 @ 3 COCKBURNS. Area of each set of valve 14.138 sq. Pressure to which they are adjusted 463 lbs/sq. ✓
 Are they fitted with easing gear IMPROVED HIGH LIFT. 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 1'-3". Height of boiler 20'-8". Width and Length 19'-4" x 19'-6"
 Steam Drums:—Number in each boiler One ✓ Inside diameter 3'-6" ✓ Thickness of plates 1 5/8" ✓
 Range of Tensile Strength 28/32 tons ✓ NOTE:—The requirements of the Rules for Class 2 pressure vessels have been complied with. 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 4.056" ✓ Pitch of tube holes 7 1/4" ✓ Percentage strength of shell in way of tubes 43.5
 Working pressure by rules 44. 450 lb. Steam Drum Heads or Ends:—Range of tensile strength 26/30 tons ✓ Thickness of plates made from 1 7/8" plate minimum thickness 1 3/4"
 Radius or how stayed 3'-0" ✓ Size of manhole or handhole 15" x 11" ✓ Working pressure by rules 44. 450 lb. Water Drums:—Number in each boiler — Inside Diameter — Thickness of plates — Range of tensile strength — Are drum shell plates welded or flanged — 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 — Diameter of tube holes in drum — Pitch of tube holes —
 Percentage strength of drum shell in way of tubes — Working pressure by rules — Water Drum Heads or Ends:—Range of Tensile strength — Thickness of plates — Radius or how stayed —
 Size of manhole or handhole — Working pressure by rules — Headers or Sections:—Number 25 each boiler uptakes ✓
 Material *Forged steel* ✓ Thickness 1/2" + 3/8" ✓ Tested by Hydraulic Pressure to 725 lb. Tubes:—Diameter 4" + 1 13/16" + 1 1/2" + 1 1/4" ✓
 Thickness 4" 2 + 4 1/4" 1 1/8" 7 + 9 1/4" Number 11250 ✓ MUDDRUM Steam Dome or Collector:—Description of Joint to Shell —
 Inside diameter 6" x 6" ✓ Thickness of shell plates 3/4" ✓ Range of tensile strength 28/32 tons ✓
 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 — Superheaters 4.5
 Thickness — Radius or how stayed — Working pressure by rules — = 960 # each Superheater

SUPERHEATER. Drums or Headers:—Number in each boiler 2 ✓ Inside Diameter 9 1/2" ✓
 Thickness 1 3/8" ✓ Material S.D. steel ✓ Range of tensile strength 28/32 tons ✓ Are drum shell plates welded or flanged — 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 — Diameter of tube holes in drum 1 1/2" ✓ Pitch of tube holes 5 1/2" ✓
 Percentage strength of drum shell in way of tubes 37.9 ✓ Working pressure by rules 44. 450 lb. Drum Heads or Ends:—
 Thickness — Range of tensile strength — Radius or how stayed — Size of manhole or handhole 3 5/8" sq. ✓
 Working pressure by rules — Number, diameter, and thickness of tubes 84 @ 1 1/2" x 9 1/4" ✓ Tested by Hydraulic Pressure to 725 lb.
 Date of Test FOR 3-10-44 PORT 11-7-44 STAR 28-4-44 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 1-3 COCKBURNS IMPROVED HIGH LIFT. ✓ Area of each set of valves 7.069 sq. ✓
 Pressure to which they are adjusted 453 lbs/sq. ✓ Is easing gear fitted YES. ✓ 15% Superheating elements cut out after trial (See Note following sheet) ✓

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

BOILER CERTIFICATE NO. 1118 - FORWARD BOILER. 440 lb + 3%
 " " NO. 1117 - PORT " " = 453.
 " " NO. 1116 - STARBOARD " "

The foregoing is a correct description,
Babcock & Wilcox, Ltd. Manufacturer.
J. Crabb Engineer Surveyor to Lloyd's Register of Shipping.

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

Is the approved plan of boiler forwarded herewith

Total No. of visits 30

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

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been constructed under special survey in accordance with the Rules and approved plans, and the materials and workmanship are good. The drums, sections, superheater and mounting have been tested under high pressure and the parts have been sent to the works for installation and hydraulic test after erection. Mon 4/40

Survey Fee ... £ 74 : 11 : } When applied for, ...
 Travelling Expenses (if any) £ : : } When received, ... 19

Committee's Minute GLASGOW 31 JUL 1944

Assigned *referred for completion*

FRI. 6 JUL 1945

See F.E. machy. rpt.

Lloyd's Register of Shipping

P.T.O.

TANKER s.s. "OLNA"

These Boilers were erected in the boiler shop of Messrs. Swan Hunter & Wigham Richardson Ltd., Neptune Works, and examined under water pressure 725 lbs per sq.in. found tight and sound. Superheaters examined under water pressure 725 lbs.per sq.in. before fitting in place in boilers found tight and sound. These boilers were efficiently placed in position on board this vessel and after securing were examined under water pressure 725 lbs.per sq.in. found sound and tight. The boilers were examined under steam during basin trials and found satisfactory, safety valves adjusted as stated and accumulation tests carried out with satisfactory results; owing to excessive superheat temperature it was decided by Makers to cut out approx. 15% of superheat elements, this was done, and the boilers again examined under water pressure 500 lbs.per sq.in. and all parts found sound and tight. The boilers were examined during sea trials on 7th and 9th May and found satisfactory.

(Signature)

Heating Surface each Superheater originally = 960 sq/ft