

REPORT ON BOILERS.

Received at London Office 10 APR 1943

Date of writing Report 26th Feb., 43 When handed in at Local Office 26th Feb., 43 Port of Vancouver, B. C.

No. in Reg. Book. Survey held at North Vancouver, B. C. Date, First Survey 21st Dec., 1942 Last Survey 23rd Feb., 1943

(Number of Visits 30) } Gross 7122.00
 } Net 4246.90

-- on the Steel Single Screw Steamer "FORT BUCKINGHAM"

Master -- Built at North Vancouver, B.C. by whom built Burrard Dry Dock Co. Ltd. Yard No. 169 When built 1943

Engines made at Montreal, P.Q. By whom made Dominion Engineering Works. Engine No. 69 When made 1942

Boilers made at Vancouver, B. C. By whom made Dominion Bridge Co. Ltd. Boiler No. (349)
(353) When made 1942
(354)

Nominal Horse Power 504 Owners Minister of Munitions & Supply of Canada. Port belonging to --

MULTITUBULAR BOILERS—MAIN, ~~AUXILIARY, OR DONKEY.~~

Manufacturers of Steel Worth Steel Co., Lukens Steel Co., American Welding Co., Bethlehem Steel Co. (Letter for Record --)

Total Heating Surface of Boilers 7140 sq. ft. Is forced draught fitted Yes Coal or Oil fired Coal

No. and Description of Boilers Three single ended cylindrical multitubular Working Pressure 220 lbs.

Tested by hydraulic pressure to 380 lbs. Date of test 14-1-43 No. of Certificate 353 Can each boiler be worked separately Yes
16-1-43 354

Area of Firegrate in each Boiler 51 sq. ft. No. and Description of safety valves to each boiler Two - 2-1/4" dia. Morrison High Lift

Area of each set of valves per boiler { per Rule 6.35 sq. ins. Pressure to which they are adjusted 220 Are they fitted with easing gear Yes
 { as fitted 7.95 sq. ins.

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler No donkey boiler

Smallest distance between boilers or uptakes and bunkers or woodwork 2 ft. Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 2 ft. Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 14'-6-3/16" Length 11'-9" ext. Shell plates: Material O.H. Steel Tensile strength 29-33 tons

Thickness 1-13/32" Are the shell plates welded or flanged No Description of riveting: circ. seams { end Double
 { inter. --

long. seams Treble Riv. Double butt straps. Diameter of rivet holes in { circ. seams 1-1/2" Pitch of rivets { 4-3/16" approx.
 { long. seams 1-1/2" { 10-1/16"

Percentage of strength of circ. end seams { plate 64.2% Percentage of strength of circ. intermediate seam { plate --
 { rivets 47.6% { rivets --

Percentage of strength of longitudinal joint { plate 85.1% Working pressure of shell by Rules --
 { rivets 92.8%
 { combined 88.7%

Thickness of butt straps { outer 1-3/32 No. and Description of Furnaces in each Boiler 3 Morrison Corrugated Stephen Gourley end.
 { inner 1-7/32

Material O.H. Steel Tensile strength 26 - 30 tons Smallest outside diameter 41-9/16"

Length of plain part { top 9-3/16" Thickness of plates { crown 21/32" Description of longitudinal joint Forge Weld
 { bottom 9-3/16" { bottom --

Dimensions of stiffening rings on furnace or c.c. bottom -- Working pressure of furnace by Rules --

End plates in steam space: Material O.H. Steel Tensile strength 26 - 30 tons Thickness 1-7/16" Pitch of stays 21" x 21"

How are stays secured Double nuts & 6-3/4" x 1/4" washers each end Working pressure by Rules --

Tube plates: Material { front O.H. Steel Tensile strength { 26 - 30 tons Thickness { 31/32
 { back O.H. Steel { 26 to 30 tons { 13/16

Mean pitch of stay tubes in nests 9.82" Pitch across wide water spaces 8-1/4" x 14-1/2" Working pressure { front --
 { back --

Girders to combustion chamber tops: Material O.H. Steel Tensile strength 29 - 33 tons Depth and thickness of girder double

at centre 10-1/4" x 7/8" Length as per Rule 34" Distance apart 11" No. and pitch of stays in each 3 - 7-5/8

Working pressure by Rules -- Combustion chamber plates: Material O.H. Steel
 Tensile strength 26 - 30 tons Thickness: Sides 25/32 Back 23/32 Top 25/32 Bottom 25/32

Pitch of stays to ditto: Sides 9" x 10-3/16" Back 9" x 8 1/2" Cent CC Top 7-5/8" x 11" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules -- Front plate at bottom: Material O.H. Steel Tensile strength 26 - 30 tons

Thickness 31/32" Lower back plate: Material O.H. Steel Tensile strength 26 - 30 tons Thickness 29/32

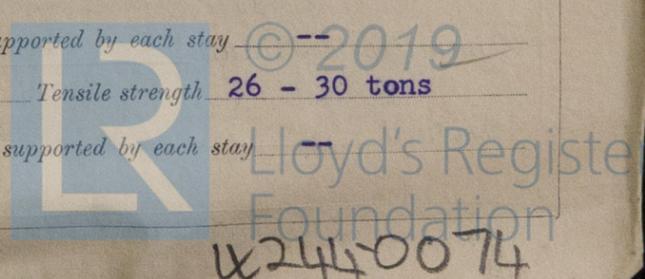
Pitch of stays at wide water space 9" x 14-1/2" Are stays fitted with nuts or riveted over nuts

Working Pressure -- Main stays: Material O.H. Steel Tensile strength 28 - 32 tons

Diameter { At body of stay, 3-1/2" No. of threads per inch 6 Area supported by each stay --
 { Over threads 3-3/4"

Working pressure by Rules -- Screw stays: Material O.H. Steel Tensile strength 26 - 30 tons

Diameter { At turned off part, 1.606 No. of threads per inch 9 Area supported by each stay --
 { Over threads 1-3/4"



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Working pressure by Rules -- Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part, 1.856" or 2" Over threads 2" ✓

No. of threads per inch 9 Area supported by each stay -- Working pressure by Rules --

Tubes; Material O.H. Steel External diameter { Plain 3" Stay 3" Thickness .16" 3/8" & 5/16" No. of threads per inch 9

Pitch of tubes 4-1/8" x 4-1/4" Working pressure by Rules -- Manhole compensation: Size of opening in end shell plate 16" x 12" Section of compensating ring -- No. of rivets and diameter of rivet holes --

Outer row rivet pitch at ends -- Depth of flange if manhole flanged 4-1/4 3-1/2 Steam Dome: Material --

Tensile strength -- Thickness of shell -- Description of longitudinal joint --

Diameter of rivet holes -- Pitch of rivets -- Percentage of strength of joint { Plate -- Rivets --

Internal diameter -- Working pressure by Rules -- Thickness of crown -- No. and diameter of stays --

How connected to shell -- Inner radius of crown -- Working pressure by Rules --

Size of doubling plate under dome -- Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell --

Type of Superheater "ELESCO" Smoke box type Manufacturers of { Tubes (National Tube Co., Pittsburg, Penna.) Steel castings

Number of elements 58 Material of tubes S.D. Steel Internal diameter and thickness of tubes .69" .095" (BBWG) min.

Material of headers O.H. Steel Tensile strength 33.5 tons Thickness 1-1/8" min. Can the superheater be shut off and the boiler be worked separately No Is a safety valve fitted to every part of the superheater which can be shut off from the boiler Yes

Area of each safety valve 1.75 per sq. inch Are the safety valves fitted with easing gear Yes Working pressure as per Rules 220 lbs. per sq. inch Pressure to which the safety valves are adjusted 220 lbs. per sq. inch Hydraulic test pressure: tubes 1500 lbs. per sq. inch. castings 550 lbs. per sq. inch. and after assembly in place steam test Are drain cocks or valves fitted to free the superheater from water where necessary Yes

Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with Yes

The foregoing is a correct description,
Dominion Bridge Co Ltd Manufacturer.
J. J. [Signature]

Dates of Survey { During progress of work in shops -- } 1942. Dec. 21, 23, 29, 31. 1943. Jan. 4, 7, 14, & 16. Are the approved plans of boiler and superheater forwarded herewith Approved (If not state date of approval.) Plans in U.K.

{ During erection on board vessel --- } 1943. Jan. 22, 25, 27, 28, 29, 30. Total No. of visits 30

Feb. 1, 3, 4, 5, 7, 9, 11, 12, 14, 16, 17, 18, 19, 20, 22, 23.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

These boilers have been constructed under Special Survey of tested materials in accordance with the approved plans, New York letters and otherwise in conformity with the Society's Rules. On completion the boilers were satisfactorily tested under hydraulic pressure to 380 lbs. per sq. inch.

They were fitted on board under Special Survey, examined under working conditions, safety valves adjusted under steam to the working pressure and a satisfactory accumulation test carried out.

Cross seam of both end plates is fusion welded by Union Melt Process, stress relieved and x-rayed under survey. Certificate attached. Welds ground flush both sides of plate. Combustion Chamber wrapper plates welded to back tube plate and Combustion Chamber back plate; Wrapper plate butts also welded, all hand welding and ground flush and tested as per Rule.

Survey Fee \$ 150.00 : When applied for, 23rd Feb. 1943

Travelling Expenses (if any) \$ 15.00 : When received, ✓ 192

R. S. Knox & J. B. Baillie
 Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute FRI. 16 APR 1943

Assigned See I.F. marks, rpl.

