

REPORT ON BOILERS.

Received at London Office

110 APR 1943

Date of writing Report **17th Feb. 43** When handed in at **Local Office** **17th Feb. 43** Port of **Vancouver, B. C.**

No. in Reg. Book. Survey held at **Vancouver, B. C.** Date, First Survey **14th December**, Last Survey **16th February 43**

on the **Steel Single Screw Steamer "FORT STAGER"** (Number of Visits **16**) Tons { Gross **7131.76**
Net **4244.31**

Built at **Vancouver, B.C.** By whom built **West Coast Shipbuilders, Limited** Yard No. **114** When built **1943**

Engines made at **Toronto, Ontario** By whom made **John Inglis & Sons** Engine No. **137** When made **1942**

Boilers made at **Vancouver, B.C.** By whom made **Vancouver Iron Works, Ltd.** Boiler No. **343**
345 When made **1942**
347

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

MULTITUBULAR BOILERS—MAIN, AUXILIARY OR DONKEY.

Manufacturers of Steel **Algoma Steel Co. Lukens Steel Co. Page-Hersey Co. Worth Steel Co., Steel Co. of Canada, American Welding Co.** (Letter for Record **-- S**)

Total Heating Surface of Boilers **7,140 square feet** 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 **29-12-42** No. of Certificate **343** Can each boiler be worked separately **Yes**

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 lbs.** Are they fitted with easing gear **Yes**
as fitted **7.95 sq. in.**

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

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

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

Largest internal diameter of boiler **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 rivetted double butt straps** Diameter of rivet holes in { circ. seams **1 1/8"** Pitch of rivets { **4-3/16" approx.**
long. seams **1 1/8"**

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%** 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 Gourlay 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 **10"** Thickness of plates { crown **21/32"** Description of longitudinal joint **forge weld**
bottom **10"** bottom

Dimensions of stiffening rings on furnace or c.c. bottom **--**

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 and 6 3/4" x 1/4" washers each end**

Tube plates: Material { front **O.H. STEEL** Tensile strength { **26 - 30 tons** Thickness { **31/32"**
back **O.H. Steel** **26 - 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"**

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

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

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**

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**

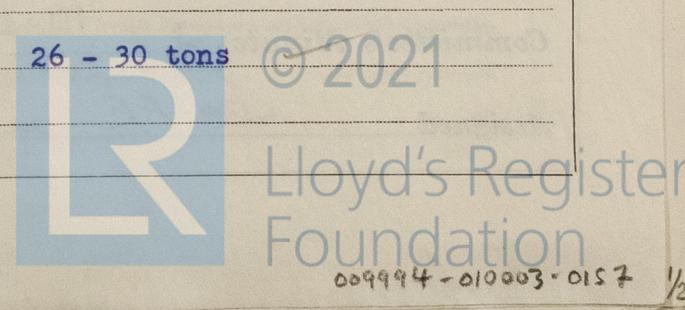
Pitch of stays at wide water space **9" x 14 1/2"** Are stays fitted with nuts or riveted over **nuts**

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**
or **3 3/4"**

Screw stays: Material **O.H. Steel** Tensile strength **26 - 30 tons**

Diameter { At turned off part **1.606** No. of threads per inch **9**
or **1 3/4"**



Are the stays drilled at the outer ends. No Margin stays: Diameter { At turned off part, or Over threads. 1.856" 2"

No. of threads per inch 9

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

Pitch of tubes 4-1/8" x 4-1/4" Manhole compensation: Size of opening in end plate 16"x12" 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" Upper 3 1/2" Lower 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 -- Thickness of crown -- No. and diameter of stays -- Inner radius of crown --

How connected to shell -- 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 "ELESKO" Smoke box type Manufacturers of { Tubes } National Tube Co. { Steel forgings } Pittsburg, Penna. { Steel castings }

Number of elements 58 Material of tubes S.D. Steel Internal diameter and thickness of tubes .69" .095" (B.B.W.G) 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 sq. in. Are the safety valves fitted with easing gear. Yes

Pressure to which the safety valves are adjusted 220 lbs. per sq. inch Hydraulic test pressure: tubes 1500 lbs. per sq. inch. forgings and castings 550 lbs. per sq. in. 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 22 inclusive for boilers been complied with. Yes

The foregoing is a correct description,
VANCOUVER IRON WORKS LTD. Manufacturer.
M. J. Fraser

Dates of Survey { During progress of work in shops - - } 1942 Dec. 15, 16, 18, 23, 24, 29, 30, 31 Are the approved plans of boiler and superheater forwarded herewith. Approved plans in U.K.
 { During erection on board vessel - - - } Jan. 6, 8, 12, 19, 20 Feb. 1, 15, 16 (If not state date of approval.)
 Total No. of visits 16

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. S.S. "FORT ST. JAMES" Ver. Rpt. No. 5718.

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

These boilers have been constructed under Special Survey of tested material 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 seams of both end plates are fusion welded by Union Melt Process, stress relieved under survey, Welds ground flush both sides of plate, combustion chamber wrapper plate welded to back tube plate and combustion chamber back plate; wrapper plate butts also welded, all by Union Melt Electric Process.

Furnaces hand electric welded to back tube plate, all welding ground flush on both sides and tested as per Rule.

Survey Fee ... \$ 150.00 : When applied for, 17 Feb. 19 43
 Travelling Expenses (if any) \$ 15.00 : When received, ✓ 19 43

R. Knox
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 16 APR 1943
 Assigned See PE machy rpt.

