

REPORT ON BOILERS.

No. 5809

Received at London Office. 2 DEC 1942

Date of writing Report. 19th Sept. 42 When handed in at Local Office. 19th Sept. 42 Port of Vancouver, B. C.

No. in Survey held at Victoria, B. C. Date, First Survey 10th June, 1942 Last Survey 12th Sept. 1942

Reg. Book. on the Steel Single Screw Steamer "FORT LIARD" (Number of Visits 29) Tons {Gross 7131.2 Net 4262.91

Built at Victoria, B. C. By whom built Victoria Machinery Depot Co. Ltd. Yard No. 22 When built 1942

Engines made at Lachine, P.Q. By whom made Dominion Engineering Works Ltd. Engine No. 26 When made 1942

Boilers made at Vancouver, B. C. By whom made Vancouver Iron Works, Ltd. Boiler No. P.#209 C.#211 S.#212 When made 1942

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., American Welding Co., Lukens Steel Co., (Letter for Record S)
Algoma Steel Co., Steel Co. of Canada, Page-Mersey.

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 20-6-42 209
24-6-42 211
26-6-42 212 No. of Certificate 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 7.5 Sq. Ins. 12.67 for donkey valves
as fitted 7.95 Sq. Ins. approved Pressure to which they are adjusted 220 lbs. Are they fitted with easing gear Yes

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 diameter 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 Butts Diameter of rivet holes in {circ. seams 1-1/2"
long. seams 1-1/2" Pitch of rivets {4-3/16" approx.
10-1/16"Percentage of strength of circ. end seams {plate 64.2%
rivets 47.6% Percentage of strength of circ. intermediate seam {plate --
rivets 85.1%Percentage of strength of longitudinal joint {plate 92.8%
rivets 88.7% combinedThickness of butt straps {outer 1-3/32
inner 1-7/32 No. and Description of Furnaces in each Boiler 3 Morrison Corrugated Stephen Gourley end.

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

Length of plain part {top 10"
bottom 10" Thickness of plates {crown 21/32"
bottom Description of longitudinal joint Forge Weld

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 11" x 7/8" Length as per Rule 34" Distance apart 11" No. and pitch of stays

in each 3 - 7-5/8 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: Side 9"x10-3/16" Back 9"x8 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"
or 3-3/4" No. of threads per inch 6
Over threads

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

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

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
Tubes: Material External diameter { Plain 3" ✓ Thickness { .16" ✓ No. of threads per inch 9 ✓
Stay 3" ✓ { 3/8" & 5/16" ✓
Pitch of tubes 4-1/8" x 4-1/4" ✓ Manhole compensation: Size of opening in
End 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 Upper 4-1/4" 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 "ELESCO" 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" (BBWG)
Min.
Material of headers O.M. 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
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 600 lbs. per sq. inch and after assembly in place 440 lbs. per sq. inch 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.
D. J. Fraser Manufacturer.

1942.
Dates of Survey { During progress of work in shops - - June 10, 11, 13, 17, 19, 20, 24, 26. Are the approved plans of boiler and superheater forwarded herewith Approved P
while building { During erection on board vessel - - 1942- July 4, 10, 17, 18, 24, 25, 29, Aug. 1, 15, 19, 20, 26, 29, 31 (If not state date of approval.) in U.K.
Total No. of visits 29

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. S.S. "FORT CAMOSUN" (Ver. Rpt. No. 5760)

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 both sides and tested as per Rule.

Survey Fee ... £150.00 : When applied for 15th Sept. 1942 RB
Travelling Expenses (if any) £15.00 : When received, ✓ 19

R. Knox & L. J. Boomer
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 8 DEC 1942
Assigned See Ver. JE 5809