

REPORT ON BOILERS.

No. 898-9-03

Received at London Office

30th
23
17,
Date of writing Report June 2 43
Nov. 2 19 42 When handed in at London Office June 5th. 43
Port of TORONTO, CANADA
No. in Survey held at TORONTO, CANADA Date, First Survey Aug. 21/42 May 31st., 43
Reg. Book. Oct 28 19 42
on the 10,000 ton Cargo Vessel "FORT CARILLON"
(Number of Visits 24 & 48 Tons Gross 7129.23 Net 4243.42
Built at Lauzon, (Levis) Que. By whom built Davie Shipbuilding & Repairing Co. Yard No. 542 When built 1943
Engines made at Lachine, P.Q. By whom made Dominion Engineering Works Ltd. Engine No. 52 When made 1942
Boilers made at Toronto, Ontario By whom made John Inglis Co. Ltd. Boiler No. 25-4380 26-4381 27-4382 When made 1942
Nominal Horse Power 504 Owners Wartime Merchant Shipping Ltd. Port belonging to

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Steel Co. of Canada
Manufacturers of Steel Heads, Lukens Steel Co. Shell, Bethlehem Steel Co. C.C. Plates, (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 14 Ft. 9" ext. dia. x 11' 9" long Scotch Marine Working Pressure 220 lbs. per Sq. In.
Tested by hydraulic pressure to 380 lbs. Date of test 10.10.42 No. of Certificate 898 22.10.42 899 28.10.42 903 Can each boiler be worked separately Yes
Area of Firegrate in each boiler 45 Sq. Ft. No. and Description of Safety valves to each boiler One Cockburn Morrison Twin Valve High Lift
Area of each set of valves per boiler {per Rule 6.33 Sq. In. 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
Smallest distance between boilers or uptakes and bunkers or woodwork 6' 0" Is oil fuel carried in the double bottom under boilers No
Smallest distance between shell of boiler and tank top plating 2' 0" Is the bottom of the boiler insulated Yes
Largest internal diameter of boilers 14' 6 3/16" Length 11' 9" over 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 rivetted
Long. seams Triple Rivetted Butt Diameter of rivet holes in {circ. seams 1 1/2" Pitch of rivets {inter. 4.275"
Percentage of strength of circ. end seams {plate 64.6 Percentage of strength of circ. intermediate seam {plate
rivets 46.8 rivets
Percentage of strength of longitudinal joint {plate 85 Working pressure of shell by Rules-221.2 lbs. per
rivets 93.4 Sq. In.
combined 88.68
Thickness of butt straps {outer 1 3/32" No. and Description of Furnaces in each Boiler Three Morrison, 3'-4 1/4" dia. x
inner 1 7/32" 7'-7 11/16" long
Material O. H. Steel Tensile strength 26 - 30 tons Smallest outside diameter 3'-5 9/16"
Length of plain part {top Thickness of plates {crown 21/32" Description of longitudinal joint Welded and rolled
bottom 21/32"
Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 230.9 lbs. per Sq. In.
End plates in steam space: Material O. H. Steel Tensile strength 26 - 30 tons Thickness 1 1/32" end plate
How are stays secured Nuts, outside and inside, Spigotted Washers. Working pressure by Rules 221 lbs. per
Tube plates: Material {front O.H. Steel Tensile strength {26 - 30 tons Thickness {1 1/32" Sq. In.
back O.H. Steel {26 - 30 tons Thickness {13/16"
Mean pitch of stay tubes in nests 9.8" Pitch across wide water spaces 14 1/2" x 8 1/4" Working pressure by Rules Front-
Back-252# 265#
Girders to combustion chamber tops: Material O. H. Steel Tensile strength 26 - 30 tons Depth and Thickness of girder
at centre 10 1/4" x 2-7/8" Plts. length as per Rule 34" Distance apart 11" No. and pitch of stays
in each Three 7 5/8" by Rules 229.3 # 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"x10 3/16" Back 9" x 9" Top 7 5/8" x 11" Are stays fitted with nuts or riveted over Fitted with nuts
Working pressure
Front plate at bottom: Material O. H. Steel by Rules-224# Tensile strength 26 - 30 tons
Thickness 1 1/32" Lower back plate: Material O.H. Steel Tensile strength 26 - 30 tons Thickness 1 1/32"
Pitch of stays at wide water space 14 1/2" x 9" Are stays fitted with nuts or riveted over Fitted with nuts
Working pressure
Main stays: Material O.H. Steel by Rules-302# Tensile strength 28 - 32 tons
Diameter {At body of stay 3 3/4" No. of threads per inch 6 Area supported by each stay 441 Sq. In.
Over threads 3 3/4" Working pressure
Screw stays: Material O.H. Steel Tensile strength 26 - 30 tons by Rules-244#
Diameter {At turned off part No. of threads per inch 9 Area supported by each stay C.C. sides 91.68 Sq.
Over threads Back 1 3/4" Back 81 Sq. In. In.
C.C. Sides 1 7/8"

Working pressure
Are the stays drilled at the outer ends No. by Rules-Back 224# C.C. Sides Margin stays: Diameter { At turned off part, or Over threads. 2" }
No. of threads per inch 9 Area supported by each stay 75 Sq. In. Working pressure by Rules-230#
Tubes: Material O.H. Steel External diameter { Plain 3" Stay 3" } Thickness { No. 8 L.S.G. (.160") 3/8" x 5/16" } No. of threads per inch 9
Pitch of tubes 4 1/4 x 4 1/8 Working pressure by Rules - 236# Manhole compensation: Size of opening in Back head 12" x 16" Section of compensating ring 1 1/4" x 1/2" No. of rivets and diameter of rivet holes -
Outer row rivet pitch at ends - Depth of flange if manhole flanged 3 3/4" Steam Dome: Material None
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 (smoke tube) Made by others Manufacturers of { Tubes The Superheater Co., Sherbrooke PQ Steel forgings " " " " Steel castings " " " " }
Number of elements 58 Material of tubes S.D. Steel Internal diameter and thickness of tubes 69" - .095"
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 Yes Is a safety valve fitted to every part of the superheater which can be shut off from the boiler
Area of each safety valve .76 sq. ins. Are the safety valves fitted with easing gear -
Pressure to which the safety valves are adjusted 220 lbs. per sq. in. Hydraulic test pressure: tubes 1500 lbs./D" forgings and castings 700 lbs./D" and after assembly in place 400 lbs./D" 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,
Date 6th Oct. 1941
John S. Heper C.M.
per C.M.

Dates of Survey { During progress of work in shops - Sept. 24, 26, 28, 29, 30. Oct. 1, 2, 3, 5, 6, 7, 10, 12, 13, 14, 15, 17, 20, 22, 23, 24, 26, 27, 28. } Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval) 29.4.42
while building { During erection on board vessel 1942 Aug. 21, Sept. 2, 5, 10, 16(2), 22, 29, Oct. 3, 8, 16, 21, 28, Nov. 7, 14, 19, 24, 30, Dec. 11, 16, 24, 1943-Jan. 7, 13, 18, 27, Feb. 4, 10, 16, 19, 26, Mar. 3, 9, 13, 19, 24, 30 Apr. 3, 10, 15, 22, 30 } Total No. of visits 24. - All in shop. 48 = 72
Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. Inglis. S. Marine (N.E.M. Type) 29.4.42 N.Y. ap Combustion Chambers Welded

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) The boilers were built under the Special Survey of the Society's Surveyors to the Rules and requirements and in accordance with the approved plan. The materials were made at an approved works and were satisfactorily tested by the Society's Surveyors. The workmanship was good and in my opinion the boilers are eligible to be classed in this Society when they have been satisfactorily installed, seen under steam and their safety valve adjusted. NOTE All combustion chambers had welded seams as plan 168-66 approved N.Y. 29.4.42. The boilers were tested to a hydrostatic pressure of 380 lbs. and were approved and stamped:

Boiler No. 4380	Boiler No. 4381	Boiler No. 4382
LLOYDS TEST	LLOYDS TEST	LLOYDS TEST
898	899	903
T.P. 380 lbs.	T.P. 380 lbs.	T.P. 380 lbs.
W.P. 220 lbs.	W.P. 220 lbs.	W.P. 220 lbs.
J.B.F. 10.10.42.	J.B.F. 22.10.42.	J.B.F. 28.10.42.

Spares (1-set of 3 boilers) 1 Main check valve lid, 184 Firebars, 1 doz. water gauge glasses 2 doz. washers for glasses, 2 spare seats and spindles for water gauges, 15 plain tubes, 3 stay tubes for each size fitted, 9 manhole gaskets, 1 spanner for manhole doors, 2 each right and left side bars, 2 each right, left and center dead plates, 2 each right and left back bearer plates, 2 bridge plates, 2 bottom plates, Metal patterns for the following - 3 firebars, 1 right dead plate, 1 left dead plate, 1 center, 1 bridge plate, 1 bridge bottom plate, 1 right back bearer plate, 1 left back bearer plate, 1 right side bar, 1 left side bar.
Note:-During sea trials it was observed that the majority of the longitudinal through stays were leaking. The Boilers were allowed to cool down, pumped out, the stay examined, stemmed with soft iron, caulked, welded and nuts hardened up.
After testing hydrostatically to 380 lbs. steam was raised to working pressure and all Boilers were found to be tight and satisfactory.

Survey Fee ... \$ 150.00 When applied for, Feb. 11 1943
Travelling Expenses (if any) \$ 10.00 When received, 19

Jas B. Fisher & D. Galkin
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned



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Foundation