

REPORT ON BOILERS.

No. 43159

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Date of writing Report 19th Nov. 1942 When handed in at Local Office 19 Port of Portland, Maine (New York) U.S.A.

No. in Reg. Book. Survey held at South Portland, Maine Date, First Survey 10th September Last Survey 12th November 42

on the s.s. "OCEAN CRUSADER" (Number of Visits Continuous Gross 7178 Tons Net 4280)

Built at So. Portland, Maine By whom built Todd-Bath Iron Shipbuilding Corporation Yard No. 28 When built 1942

Engines made at Lachine, P.Q. By whom made Canadian Allis Chalmers Ltd. Engine No. 115 When made 1942

Boilers made at Schenectady, New York By whom made American Locomotive Co. Boiler No. S98, S103, S104 When made 1942

Nominal Horse Power 505 Owners British Ministry of War Transport Port belonging to

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Bethlehem Steel Co. & Worth Steel Co. (Letter for Record S)

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

No. and Description of Boilers 3 Cylindrical Multitubular Working Pressure 220 lbs.

Tested by hydraulic pressure to 380 lbs. Date of test June, 1942 No. of Certificates S98, 103, 104 Can each boiler be worked separately yes

Area of Firegrate in each boiler 43 sq.ft. No. and Description of Safety valves to each boiler Two spring loaded special high lift.

Area of each set of valves per boiler { per Rule as approved 12-67 for ordinary valves Pressure to which they are adjusted 220 lbs. Are they fitted with easing gear yes as fitted 5.52 sq.in. approved

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

Smallest distance between ~~uptakes~~ uptakes and bunkers or woodwork 6'6" No Woodwork oil fuel carried in the double bottom under boilers No oil fuel.

Smallest distance between shell of boiler and tank top plating 2'4" Is the bottom of the boiler insulated yes

Largest internal diameter of boilers 14'6-3/16" Length 11'8-1/32" Shell plates: Material Steel Tensile strength 65000-75000 lbs.

Thickness 1-13/32" Are the shell plates welded or flanged No Description of riveting: circ. seams { end D.R. inter None } 4 1/2" 4 1/2"

Long. seams T. R. D. B. S. Diameter of rivet holes in { circ. seams 1 1/2" long. seams 1 1/2" } Pitch of rivets { 5" & 10" }

Percentage of strength of circ. end seams { plate 65.2 rivets 46.3 } Percentage of strength of circ. intermediate seam { plate NONE rivets NONE }

Percentage of strength of longitudinal joint { plate 85 rivets 93.5 combined 88.7 }

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

Material Steel Tensile strength 58000-68000 lbs. Smallest outside diameter 41 1/2"

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

Dimensions of stiffening rings on furnace or c.c. bottom none

End plates in steam space: Material Steel Tensile strength 58000-68000 lbs. Thickness 1-7/16" Pitch of stays 21 1/4" x 21"

How are stays secured Double Nuts.

Tube plates: Material { front Steel back Steel } Tensile strength { 58000-68000 lbs. } Thickness { 31/32" 13/16" }

Mean pitch of stay tubes in nests 10" 9.7 Pitch across wide water spaces 14 1/2" x 8 1/4"

Girders to combustion chamber tops: Material Steel Tensile strength 65000-75000 lbs. Depth and Thickness of girder at centre 10-1/4" x 1-3/4" Length as per Rule 2'10" Distance apart 11" No. and pitch of stays in each 3 @ 7-5/8" Combustion chamber plates: Material Steel

Tensile strength 58000-68000 lbs. 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 9" Top 11" x 7-5/8" Are stays fitted with nuts or riveted over Nuts

Front plate at bottom: Material Steel Tensile strength 58000 - 68000

Thickness 31/32" Lower back plate: Material Steel Tensile strength 58000-68000 lbs. Thickness 29/32"

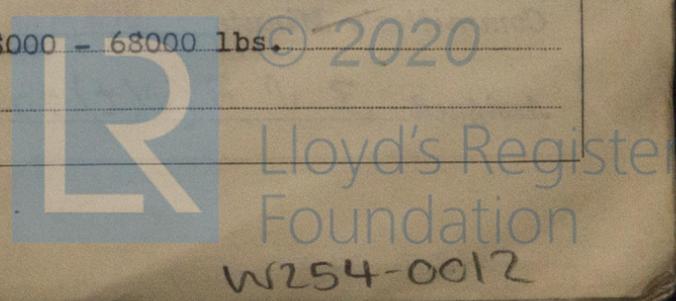
Pitch of stays at wide water space 14 1/2" x 9" Are stays fitted with nuts or riveted over Nuts

Main stays: Material Steel Tensile strength 60000-70000 lbs.

Diameter { At body of stay 3 1/2" or Over threads 3-3/4" } No. of threads per inch 6

Screw stays: Material Steel Tensile strength 58000 - 68000 lbs.

Diameter { At turned off part 1-3/4", 1-7/8", 2", 2-1/8" or Over threads 1-3/4", 1-7/8", 2", 2-1/8" } No. of threads per inch 9



Are the stays drilled at the outer ends No Margin stays: Diameter ^{At turned off part} 2" & 2-1/8"
 No. of threads per inch 9
 Tubes: Material S.D. Steel External diameter ^{Plain 3"} 3" Thickness ^{Stay 3"} .165" No. of threads per inch 9
 Pitch of tubes 4 1/4" x 4-1/8" Manhole compensation: Size of opening in end
 shell plate 12" x 16" Section of compensating ring X No. of rivets and diameter of rivet holes X
 Outer row rivet pitch at ends X Depth of flange if manhole flanged X Steam Dome: Material X
 Tensile strength X Thickness of shell X Description of longitudinal joint X
 Diameter of rivet holes X Pitch of rivets X Percentage of strength of joint ^{Plate} X ^{Rivets} X
 Internal diameter X Thickness of crown X No. and diameter of stays X
 Inner radius of crown X
 How connected to shell X Size of doubling plate under dome X Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell X

Type of Superheater N.E. Marine Eng. Co. Type Manufacturers of ^{Tubes} Combustion Eng. Co.
^{Steel forgings} " " "
^{Steel castings} " " "
 Number of elements 58 Material of tubes S.D. Steel Internal diameter and thickness of tubes .689" x .093"
 Material of headers S.D. Steel Tensile strength 62000 lbs. Min. Thickness 1-1/8" 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 1.77 sq. in. Are the safety valves fitted with easing gear no
 Pressure to which the safety valves are adjusted 220 lbs. sq. Hydraulic test pressure: tubes 1000 lbs. sq. forgings and castings 440 lbs. sq. and after assembly in place 380 lbs. sq. 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,
T. B. Pinkham Manufacturer.
 TODD BATH IRON SHIPBUILDING CORP.

Dates of Survey ^{During progress of work in shops - -} Continuous from 10th September 1942 until 12th November, 1942. the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)
^{During erection on board vessel - - -} Total No. of visits _____

Is this Boiler a duplicate of a previous case yes If so, state Vessel's name and Report No. S.S. "OCEAN LIBERTY", S85, S87, S89

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These Boilers, built under the Special Survey of the Society's Surveyors have now been fitted on board this vessel in accordance with approved plans and the Society's Rules. The workmanship is good. See also New York Rpt. Nos. 42518, 42561, 42562.

Survey Fee £ See Machinery Report. When applied for, 10
 Travelling Expenses (if any) £ : : When received, 10

T. B. Pinkham
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK JAN 6 - 1943
 Assigned 3 S B (Sht) 220 lbs.

