

## REPORT ON BOILERS.

No. 28

Received at London Office. 8 SEP 1942

Date of writing Report AUGUST 6th, 1942 When handed in at Local Office AUGUST 6th, 1942

Port of RICHMOND, CALIFORNIA

Date of Survey held at RICHMOND, CALIFORNIA

Date, First Survey MAY 25th, 1942 Last Survey JULY 27th, 1942

on the S. S. "OCEAN VANQUISHER"

(Number of Visits 47)

Tons { Gross 7174  
Net 4272Built at RICHMOND, CALIFORNIA By whom built TODD-CALIFORNIA SHIPBUILDING DIVISION  
of THE PERMANENTE METALS CORPORATION

Yard No. 28

When built 1942

Engines made at HAMILTON, OHIO

By whom made GENERAL MACHINERY CORP.

Engine No. 6735

When made 1942

Boilers made at SEATTLE, WASHINGTON

By whom made PUGET SOUND MACHINERY DEPOT

Boiler No. 23, 24

When made 1942

Nominal Horse Power 505

Owners BRITISH GOVERNMENT

Port belonging to LONDON

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

Manufacturers of Steel LUKENS, CARNEGIE-ILLINOIS STEEL CO.

(Letter for Record S)

Total Heating Surface of Boilers 7174 sq. ft.

Is forced draught fitted YES

Coal or Oil fired COAL

No. and Description of Boilers 3 SINGLE ENDED SCOTCH MULTITUBULAR

Working Pressure 220 lbs.

Tested by hydraulic pressure to 380 lbs.

Date of test MAY 27th, 1942

No. of Certificates 23 &amp; 24

Can each boiler be worked separately YES

Area of Firegrate in each boiler 52 sq. ft.

No. and Description of Safety valves to each boiler 2 SPRING LOADED SPECIAL HIGH LIFTS

Area of each set of valves per boiler { per Rule APPROVED

as fitted 5.52"

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

Smallest distance between boilers or uptakes and bunkers or woodwork

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 boilers 14' 6 3/16" Length 11' 6 3/16"

Shell plates: Material STEEL

Tensile strength 65000/75000 lbs. per sq. in.

Thickness 1 13/32"

Are the shell plates welded or flanged NO

Description of riveting: circ. seams { end D.R.

inter.

Long. seams T.R.D.B.S.

Diameter of rivet holes in { circ. seams 1.5"

long. seams 1.5"

Pitch of rivets { 5"

10"

Percentage of strength of circ. end seams { plate 64.7

rivets 47.0

Percentage of strength of circ. intermediate seam { plate

rivets

Percentage of strength of longitudinal joint { plate 85.0

rivets 93.4

combined 88.8

Thickness of butt straps { outer 1 3/32"

inner 1 7/32"

No. and Description of Furnaces in each Boiler 3 MORRISON TYPE

Material STEEL

Tensile strength 58000/68000 lbs. per sq. in. Smallest outside diameter 44 9/16"

Length of plain part { top 7 13/16"

bottom 7 13/16"

Thickness of plates { crown 21/32"

bottom 21/32"

Description of longitudinal joint FORGE WELD

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

End plates in steam space: Material STEEL

Tensile strength 58000/68000 lbs. per sq. in. Thickness 1 1/32" R.D. Pitch of stays 21"

1 1/32"

How are stays secured DOUBLE NUTS

Tube plates: Material { front STEEL

back STEEL

Tensile strength { 58000/68000 lbs. per sq. in.

Thickness { 1 1/32"

13/16"

Mean pitch of stay tubes in nests 9.56"

Pitch across wide water spaces 14.5" x 4 1/8" &amp; 4 1/4"

Orders to combustion chamber tops: Material STEEL

Tensile strength 65000/75000 lbs. per sq. in. Depth and Thickness of girder

Centre 10.25" x 2 @ 7/8"

Length as per Rule 2' 10"

Distance apart 11"

No. and pitch of stays

Each 3 @ 7.625"

Combustion chamber plates: Material STEEL

Tensile strength 58000/68000 lbs. per sq. in. Thickness: Sides 25/32"

Back 25/32"

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 INSIDE

RIVETED OUTSIDE

Front plate at bottom: Material STEEL

Tensile strength 58000/68000 lbs. per sq. in.

Thickness 1 1/32"

Lower back plate: Material STEEL

Tensile strength 58000/68000 lbs. per sq. in. Thickness 1 1/32"

Pitch of stays at wide water space 14 1/2" x 9"

Are stays fitted with nuts or riveted over NUTS &amp; RIVETED OVER

Main stays: Material STEEL

Tensile strength 65000/75000 lbs. per sq. in.

Diameter { At body of stay 3.5"

Over threads 3.75"

No. of threads per inch 6

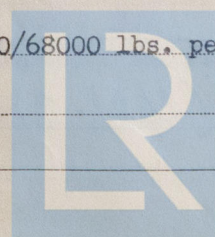
New stays: Material STEEL

Tensile strength 58000/68000 lbs. per sq. in.

Diameter { At turned off part

Over threads 1 7/8" SIDES, 1 3/4" BACK

No. of threads per inch 9

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Are the stays drilled at the outer ends NO Margin stays: Diameter { At turned off part, ---  
or  
Over threads 2 1/8" - 2" pt.  
No. of threads per inch 9  
Tubes: Material STEEL External diameter { Plain 3"  
Stay 3" Thickness { .165  
3/8" - 5/16" No. of threads per inch 9  
Pitch of tubes 4 1/4" x 4 1/8" Manhole compensation: Size of opening  
END  
shell plate 16" x 12" Section of compensating ring NONE 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 --- ult a  
Internal diameter --- Thickness of crown --- No. and diameter  
stays --- Inner radius of crown --- ngin  
How connected to shell --- Size of doubling plate under dome --- Diameter of rivet holes and p  
of rivets in outer row in dome connection to shell --- omin

Type of Superheater ELESCO MARINE Manufacturers of { Tubes DETROIT SEAMLESS STEEL TUBE CO.  
Steel forgings COMBUSTION ENGINEERING CO.  
Steel castings NONE  
Number of elements 174 Material of tubes STEEL Internal diameter and thickness of tubes .685", .095" MU  
Material of headers STEEL Tensile strength 60000 lbs./sq.in. Thickness 1 1/8" Can the superheater be shut off u  
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 NO anuf  
Area of each safety valve 1.75 sq. in. Are the safety valves fitted with easing gear NO otal  
Pressure to which the safety valves are adjusted 220 lbs. per sq. in. Hydraulic test pressur o. a  
tubes 1000 lbs. per sq. in. forgings and castings 440 lbs. per sq.in. and after assembly in place 380 lbs. per sq.in. Are drain cocks ested  
valves fitted to free the superheater from water where necessary YES rea c  
Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with YES rea o  
The foregoing is a correct description,  
*John Findlay* Manufactur

Dates of Survey { During progress of work in shops - - } MARCH 25th to MAY 27th, 1942 Are the approved plans of boiler and superheater forwarded herewith NO  
(If not state date of approval.) JULY 8th, 1941  
while building { During erection on board vessel - - } MAY 25th to JULY 7th, 1942 Total No. of visits 47 rgest  
pickne

Is this Boiler a duplicate of a previous case NO If so, state Vessel's name and Report No. "OCEAN VIRTUE" ng.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers, constructed under Special  
Survey (see Seattle Boiler Reports Nos. 3491 and 3492 attached hereto), have now been fitted on board the vessel,  
in accordance with the approved plans and the requirements of the Rules. The safety valves were adjusted under  
steam to 220 lbs. per sq. in. The boilers were tried under working conditions with good results, and in our  
opinion are now in a good and safe condition. rcent.  
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Survey Fee ... £ Inclusive fee to be charged } When applied for, 19  
Travelling Expenses (if any) £ in London } When received, 19

FOR J. FINDLAY AND SELF:

*John Findlay*  
Engineer Surveyor to Lloyd's Register of Shipping in s

Committee's Minute NEW YORK AUG 26 1942 M

Assigned 3 P.B. (Cpt) - 220 lbs.



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