

## REPORT ON BOILERS.

No. 10,194

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Date of writing Report 14/9/40 19 When handed in at Local Office 18/9/40 19 Port of MANCHESTER

No. in Reg. Book. Survey held at Manchester Date, First Survey 22/8/40 Last Survey 30/8/40 19

87957 on the 5/8" EMPIRE BISON ex "WEST CAWTHON" (Number of Visits 4) Tons { Gross Net

Master Built at San Pedro, Cal. By whom built S. Western S.B. Co. Yard No. When built 1919

Engines made at Los Angeles By whom made Levellyn Iron Works Engine No. When made 1919

Boilers made at By whom made Boiler No. When made

Nominal Horse Power Owners Ministry of Shipping Port belonging to London.

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

Manufacturers of Steel (Letter for Record)

Total Heating Surface of Boilers Is forced draught fitted YES Coal or Oil fired OIL

No. and Description of Boilers THREE MULTITUBULAR SCOTCH TYPE PREVIOUS Working Pressure 210 lbs/sq"

Tested by hydraulic pressure to ✓ Date of test ✓ No. of Certificate ✓ Can each boiler be worked separately YES

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler 2 @ 3 1/2" φ. SPRING-LOADED

Area of each set of valves per boiler { per Rule as fitted 19.250" Pressure to which they are adjusted 210 lbs/sq" 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 YES

Smallest distance between shell of boiler and tank top plating 15" Is the bottom of the boiler insulated NO

Largest internal dia. of boilers Length Shell plates: Material Tensile strength

Thickness 1 1/2" Are the shell plates welded or flanged NO Description of riveting: circ. seams { end D.R. LAP inter. ✓

long. seams D.B. STRAPS TREBLE RIVETED 5 RIVETS PER PITCH. Diameter of rivet holes in { circ. seams 4" long. seams 10 1/8" Pitch of rivets {

Percentage of strength of circ. end seams { plate rivets Percentage of strength of circ. intermediate seam { plate rivets

Percentage of strength of longitudinal joint { plate rivets combined Working pressure of shell by Rules

Thickness of butt straps { outer 1 7/16" inner No. and Description of Furnaces in each Boiler 3 CORRUGATED.

Material Tensile strength Smallest outside diameter 44 3/4"

Length of plain part { top Thickness of plates { crown 13/16" bottom Description of longitudinal joint WELDED

Dimensions of stiffening rings on furnace or c.c. bottom NONE Working pressure of furnace by Rules

End plates in steam space: Material Tensile strength Thickness 1 1/4" Pitch of stays 16 1/2"

How are stays secured NUTS INSIDE + OUTSIDE EACH END Working pressure by Rules

Tube plates: Material { front Tensile strength Thickness { 7/8" back 1"

Mean pitch of stay tubes in nests 8 1/4" x 12 1/2" Pitch across wide water spaces 13" Working pressure { front back

Girders to combustion chamber tops: Material Tensile strength Depth and thickness of girder

at centre 11" x 1 1/2" Length as per Rule Distance apart 8" WINGS 8 1/4" No. and pitch of stays

in each 4 OFF 7 1/4" Working pressure by Rules Combustion chamber plates: Material

Tensile strength Thickness: Sides 7/8" Back 13/16" Top 7/8" Bottom 7/8"

Pitch of stays to ditto: { Sides 7 1/8" x 7 3/4" Back 7 3/8" x 7 3/4" Top 6 7/8" x 8 1/4" x 8 1/4" Are stays fitted with nuts or riveted over RIVETED OVER

Working pressure by Rules Front plate at bottom: Material Tensile strength

Thickness 7/8" Lower back plate: Material Tensile strength Thickness 7/8"

Pitch of stays at wide water space 13" Are stays fitted with nuts or riveted over RIVETED OVER

Working Pressure Main stays: Material Tensile strength

Diameter { At body of stay, 3 1/4" No. of threads per inch 6 Area supported by each stay 16 1/2" x 18"

Working pressure by Rules Screw stays: Material Tensile strength

Diameter { At turned off part, 1 5/8" No. of threads per inch 11 Area supported by each stay

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Working pressure by Rules \_\_\_\_\_ Are the stays drilled at the outer ends YES Margin stays: Diameter { At turned off part, 1 5/8"  
Over threads  
No. of threads per inch 11 Area supported by each stay \_\_\_\_\_ Working pressure by Rules \_\_\_\_\_  
Tubes: Material \_\_\_\_\_ External diameter { Plain \_\_\_\_\_ Thickness { \_\_\_\_\_ No. of threads per inch \_\_\_\_\_  
Stay \_\_\_\_\_  
Pitch of tubes 4 1/8" x 4.16" Working pressure by Rules \_\_\_\_\_ Manhole compensation: Size of opening in  
BACK END PLATE AT TOP \_\_\_\_\_  
Shell plate 12" x 16" 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" 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 \_\_\_\_\_ Working pressure by Rules \_\_\_\_\_ Thickness of crown \_\_\_\_\_ No. and diameter of  
stays \_\_\_\_\_ Inner radius of crown \_\_\_\_\_ Working pressure by Rules \_\_\_\_\_  
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 NONE Manufacturers of { Tubes \_\_\_\_\_  
Steel castings \_\_\_\_\_  
Number of elements \_\_\_\_\_ Material of tubes \_\_\_\_\_ Internal diameter and thickness of tubes \_\_\_\_\_  
Material of headers \_\_\_\_\_ Tensile strength \_\_\_\_\_ Thickness \_\_\_\_\_ Can the superheater be shut off and  
the boiler be worked separately \_\_\_\_\_ Is a safety valve fitted to every part of the superheater which can be shut off from the boiler \_\_\_\_\_  
Area of each safety valve \_\_\_\_\_ Are the safety valves fitted with easing gear \_\_\_\_\_ Working pressure as per  
Rules \_\_\_\_\_ Pressure to which the safety valves are adjusted \_\_\_\_\_ Hydraulic test pressure: \_\_\_\_\_  
tubes \_\_\_\_\_, castings \_\_\_\_\_ and after assembly in place \_\_\_\_\_ Are drain cocks or valves fitted  
to free the superheater from water where necessary \_\_\_\_\_

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with \_\_\_\_\_

The foregoing is a correct description,

Manufacturer, \_\_\_\_\_

Dates of Survey { During progress of work in shops - - } Are the approved plans of boiler and superheater forwarded herewith  
while building { During erection on board vessel - - - } (If not state date of approval.)  
Total No. of visits \_\_\_\_\_

Is this Boiler a duplicate of a previous case UNKNOWN. If so, state Vessel's name and Report No. \_\_\_\_\_

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

Plans of the boilers were not available on this occasion but, as the vessel was understood to be sailing to the U.S.A., the Superintendent was requested to obtain same for the purpose of further checking of scantlings, etc: on her return to the U.K.

Survey Fee ... £ : : When applied for, 19  
Travelling Expenses (if any) £ : : When received, 19

H. Knowles,  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute \_\_\_\_\_

Assigned \_\_\_\_\_

No action



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