

REPORT ON BOILERS.

Received at London Office 13 FEB 1928

Date of writing Report _____ 192__ When handed in at Local Office _____ 192__ Port of Sunderland

No. in Survey held at Sunderland Date, First Survey ✓ Last Survey 4th Feb 1928

2764 on the T.S.S. "SAN CASTO" (Number of Visits ✓) Tons { Gross 2450 Net 1250

Master Built at Sunderland By whom built J. L. Thompson & Sons L^{td} Yard No. 559 When built 1928

Engines made at Sunderland By whom made MacColl & Pollock L^{td} Engine No. 360 When made 1928

Boilers made at Sunderland By whom made MacColl & Pollock L^{td} Boiler No. 360 When made 1928

Nominal Horse Power 217 Owners Anglo-Mexican Petroleum Co. L^{td} Port belonging to London

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Messrs The Steel Company of Scotland Limited (Letter for Record (S))

Total Heating Surface of Boilers 4209 sq ft Is forced draught fitted No Coal or Oil fired Oil fired

No. and Description of Boilers Two - Single ended Marine type, Corrugated furnaces. Working Pressure 180 lbs sq"

Tested by hydraulic pressure to 320 lbs sq" Dates of tests 6-12-27, 12-13-27 Nos of Certificate 3970, 3971 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler Oil fired No. and Description of safety valves to each boiler Two - Direct Spring loaded.

Area of each set of valves per boiler { per Rule 16.19 sq" as fitted 16.59 sq" Pressure to which they are adjusted 185 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 on uptakes and bunkers on woodwork 3' 6" Is oil fuel carried in the double bottom under boilers ✓

Smallest distance between shell of boiler and FLOR top plating 1' 3" Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 14' 6 5/8" Length 11' 6" (FULL) Shell plates: Material Steel Tensile strength 28 1/2 to 32 1/2 tons

Thickness 1 3/16" Are the shell plates welded or flanged No Description of riveting: circ. seams { end D.R. Lap inter. ✓

Long. seams A.R.D.B.S. Diameter of rivet holes in { circ. seams 1 1/4" long. seams 1 1/4" Pitch of rivets { 3 3/8" 8.571"

Percentage of strength of circ. end seams { plate 67.74 rivets 43.04 Percentage of strength of circ. intermediate seam { plate 85.42 rivets 91.2

Percentage of strength of longitudinal joint { plate 85.42 rivets 91.2 combined 89.0 Working pressure of shell by Rules 182.6 lbs sq"

Thickness of butt straps { outer 1" inner 1 1/8" No. and Description of Furnaces in each Boiler Three - Corrugated Dighton type.

Material Steel Tensile strength 26 to 30 tons Smallest outside diameter 3' 6 9/16"

Length of plain part { top ✓ bottom ✓ Thickness of plates { crown 1 1/2" bottom 1 3/32" Description of longitudinal joint Welded.

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 180.4 lbs sq"

End plates in steam space: Material Steel Tensile strength 26 to 30 tons Thickness 1 1/4" Pitch of stays 20" x 20 1/4"

How are stays secured Double Nuts & Washers outside Working pressure by Rules 180.3 lbs sq"

End plates: Material { front Steel back Steel Tensile strength { 26 to 30 tons Thickness { 27 3/32" 25 3/32"

Mean pitch of stay tubes in nests 10.59" Pitch across wide water spaces 14" Working pressure { front 184.5 lbs sq" (W.W. Space) back 195 lbs sq"

Ends to combustion chamber tops: Material Steel Tensile strength 28 to 32 tons Depth and thickness of girder

Centre 7 5/8" x 1 5/8" Length as per Rule 32.56" Distance apart 8 1/4" No. and pitch of stays

Each 2 @ 10 3/16" Working pressure by Rules 185 lbs sq" Combustion chamber plates: Material Steel

Tensile strength 26 to 30 tons Thickness: Sides 1 1/16" Back 2 1/32" Top 1 1/16" Bottom 1 1/16"

Pitch of stays to ditto: Sides 10 3/16" x 8 1/4" Back Wings 9 5/8" x 8 3/4" Top 10 3/16" x 8 1/4" Are stays fitted with nuts or riveted over Fitted with nuts.

Working pressure by Rules Sides & Top 192 lbs sq" Centre Back 185 lbs sq" Front plate at bottom: Material Steel Tensile strength 26 to 30 tons

Thickness 27 3/32" Lower back plate: Material Steel Tensile strength 26 to 30 tons Thickness 1 3/16"

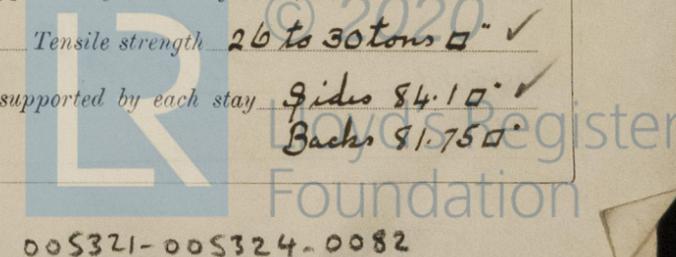
Pitch of stays at wide water space 14" x 8 1/2" Are stays fitted with nuts or riveted over Fitted with nuts

Working Pressure 200 lbs sq" Main stays: Material Steel Tensile strength 28 to 32 tons

Diameter { At body of stay, 3 1/8" & 3" or 3" No. of threads per inch 6 Area supported by each stay 405 sq"

Working pressure by Rules 182 lbs sq" Screw stays: Material Steel Tensile strength 26 to 30 tons

Diameter { At turned off part, 1 5/8" & 1 3/4" or 1 3/4" No. of threads per inch 9 Area supported by each stay Sides 84.10"



Working pressure by Rules *Sides 180.8 lbs* *Backs 180 lbs* Are the stays drilled at the outer ends *No* Margin stays: Diameter *At turned off part, 1 7/8" 1 3/4" by 1/8"* or Over threads

No. of threads per inch *9* Area supported by each stay *1190"* Working pressure by Rules *180.8 lbs*

Tubes: Material *Wrought Iron* External diameter *Plain 3" Stay 3"* Thickness *9. W. 5/16" 5/16" + 3/8"* No. of threads per inch *9*

Pitch of tubes *4 1/8" x 4 5/16"* Working pressure by Rules *Plain tubes 190 lbs Stay tubes 229 lbs* Manhole compensation: Size of opening

shell plate *16" x 12"* Section of compensating ring *6 1/2" x 8 3/4" x 1 3/16"* No. of rivets and diameter of rivet holes *32 @ 1 1/4" dia.*

Outer row rivet pitch at ends *8.571 (min)* Depth of flange if manhole flanged

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

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 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 23 inclusive for boilers been complied with *Yes*

The foregoing is a correct description,
 PER PRO MACCOLL & POLLOCK
J. H. Pilling Manufacturer

Dates of Survey *Please see M. Chy. Report* are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

During progress of work in shops - -

while building *During erection on board vessel - - -*

Total No. of visits

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

The materials and workmanship are good.

The Boilers have been constructed under Special Survey, and satisfactorily fitted in the vessel. For notation see Machinery Report.

Survey Fee £ *Charged on Machinery Report* When applied for, 192

Travelling Expenses (if any) £ When received, 192

A. T. Griffiths
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute *FRI. 17 FEB 1928*

Assigned *See Pt. of attached*

