

## REPORT ON BOILERS.

No. 22296

Received at London Office

APR 24 1937

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Date of writing Report 5.4.37 19 When handed in at Local Office 10 Port of Hamburg

No. in Survey held at Kiel Date, First Survey 4.7.36 Last Survey 1.4.37 19

Reg. Book. 8898 on the Steel Scr. "Henry Dundas" (Number of Visits 11) Gross 10448 Tons Net 6005

Master [Signature] Built at Kiel By whom built F. Krupp Germaniawerft Yard No. 547 When built 1932

Engines made at Kiel By whom made Fried. Krupp Germaniawerft A.G. Engine No. 5807 When made 1932

Boilers made at Kiel By whom made Fried. Krupp Germaniawerft A.G. Boiler No. 3941-2 When made 1932

Nominal Horse Power 912 Owners Oriental Tankers Limited Port belonging to London

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Deutsche Rohrenwerke & F. Thyssen, Mülheim/Ruhr (Letter for Record 5)

Total Heating Surface of Boilers 510 m<sup>2</sup> Is forced draught fitted yes Coal or Oil fired oil

No. and Description of Boilers 2 mult. Scotch Marine Donkey Boilers Working Pressure 200 lb

Tested by hydraulic pressure to 350 lb Date of test 1.12.36 No. of Certificate 642-3 Can each boiler be worked separately yes

Area of Firegrate in each Boiler ✓ No. and Description of safety valves to each boiler 1, 2 springs loaded

Area of each set of valves per boiler { per Rule 10,200 m<sup>2</sup> as fitted 18,703 m<sup>2</sup> Pressure to which they are adjusted 200 lb Are they fitted with easing gear yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler At sea these donkey boilers work in connection with a 125 heat donkey boiler.

Smallest distance between boilers or uptakes and bunkers or woodwork ✓ Is oil fuel carried in the double bottom under boilers to deck

Smallest distance between shell of boiler and tank top plating 500 mm Is the bottom of the boiler insulated yes, asbestos mat

Largest internal dia. of boilers 4400 mm Length 3690 mm Shell plates: Material O.H. Steel Tensile strength 44+80 kg/cm<sup>2</sup>

Thickness 34 mm Are the shell plates welded or flanged flanged Description of riveting: circ. seams { end 2.3 inter ✓

long. seams double 5t. straps Diameter of rivet holes in { circ. seams 35 mm long. seams 35 mm Pitch of rivets { plate ✓ rivets ✓

Percentage of strength of circ. end seams { plate 66% rivets 44.4 Percentage of strength of circ. intermediate seam { plate ✓ rivets ✓

Percentage of strength of longitudinal joint { plate 84.7 rivets 89 combined 87.3 Working pressure of shell by Rules 14.2 kg/cm<sup>2</sup>

Thickness of butt straps { outer 27 mm inner 30 mm No. and Description of Furnaces in each Boiler 3 Morrison

Material O.H. Steel Tensile strength 41+47 kg/cm<sup>2</sup> Smallest outside diameter 1080 mm

Length of plain part { top 259.5 mm bottom ✓ Thickness of plates { crown 15 mm bottom ✓ Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 14.2 kg/cm<sup>2</sup>

End plates in steam space: Material O.H. Steel Tensile strength 41+47 kg/cm<sup>2</sup> Thickness 32 mm Pitch of stays 480+420 mm

How are stays secured SCREWED, NUTS OUTSIDE Working pressure by Rules 19.6 kg/cm<sup>2</sup>

Tube plates: Material { front O.H. Steel back O.H. Steel Tensile strength { 41+47 kg/cm<sup>2</sup> Thickness { 21 mm

Mean pitch of stay tubes in nests 220+220 mm Pitch across wide water spaces 367 mm Working pressure { front 15.5 kg/cm<sup>2</sup> back 26 kg/cm<sup>2</sup>

Girders to combustion chamber tops: Material O.H. Steel Tensile strength 44+80 kg/cm<sup>2</sup> Depth and thickness of girder

at centre 2502, 18 mm each Length as per Rule 875 mm Distance apart 120 mm No. and pitch of stays

in each 3, 205 mm Working pressure by Rules 14.5 kg/cm<sup>2</sup> Combustion chamber plates: Material O.H. Steel

Tensile strength 41+47 kg/cm<sup>2</sup> Thickness: Sides 19 mm Back 19 mm Top 19 mm Bottom 38 mm

Pitch of stays to ditto: Sides 205+190 mm Back 190+190 mm Top 205+220 mm Are stays fitted with nuts or riveted over riveted over

Working pressure by Rules 15.5, 16.5, 18 kg/cm<sup>2</sup> Front plate at bottom: Material O.H. Steel Tensile strength 41+47 kg/cm<sup>2</sup>

Thickness 23 mm Lower back plate: Material O.H. Steel Tensile strength 41+47 kg/cm<sup>2</sup> Thickness 22 mm

Pitch of stays at wide water space 480+600 mm Are stays fitted with nuts or riveted over with nuts

Working Pressure 16.9 kg/cm<sup>2</sup> Main stays: Material O.H. Steel Tensile strength 44+80 kg/cm<sup>2</sup>

Diameter { At body of stay 26 mm No. of threads per inch 6 Area supported by each stay 110,200 mm<sup>2</sup>

Over threads 24.47 mm Working pressure by Rules 14.5 kg/cm<sup>2</sup> Screw stays: Material O.H. Steel Tensile strength 41+47 kg/cm<sup>2</sup>

Diameter { At turned off part 25 mm No. of threads per inch 9 Area supported by each stay 37,915 mm<sup>2</sup>

Over threads 19 mm



Working pressure by Rules 12.24 Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 1.2 or Over threads 1.2  
No. of threads per inch 7 Area supported by each stay 62.730 2 Working pressure by Rules 15.54  
Tubes: Material 0.4.8406 External diameter { Plain 1.2 Stay 1.2 Thickness { 4.2 No. of threads per inch 9  
Pitch of tubes 110.140 2 Working pressure by Rules 16.44 Manhole compensation: Size of opening  
shell plate 440.440 2 Section of compensating ring 250.1050.30 2 No. of rivets and diameter of rivet holes 46, 35 2  
Outer row rivet pitch at ends 194 2 Depth of flange if manhole flanged 101 2 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  
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 coil system Manufacturers of Tubes Press- und Hatzwerk, Düsseldorf  
Number of elements 22 Material of tubes 0.4.8406 Internal diameter and thickness of tubes 32 mm, 3 mm  
Material of headers 0.4.8406 Tensile strength 48.84/2 Thickness 22-2 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 yes  
Area of each safety valve 80.25 2 Are the safety valves fitted with easing gear yes Working pressure as per  
Rules 97 kg/cm<sup>2</sup> Pressure to which the safety valves are adjusted 200 lbs. Hydraulic test pressure  
tubes 12.30.15 headers 600.15 and after assembly in place 42 kg/cm<sup>2</sup> 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,

GERMANIA WERFT

Manufacturer

Dates of Survey { During progress of work in shops - - - Dec. 1 1936  
while building { During erection on board vessel - - - Jan. 22 Apr. 1 1937  
Are the approved plans of boiler and superheater forwarded herewith yes, 1.3.37  
(If not state date of approval.)  
Total No. of visits 11

Is this Boiler a duplicate of a previous case yes If so, state Vessel's name and Report No. "H. B. Halber", "Narragansett"

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

These donkey boilers are built under Special Survey in accordance with the approved plans of the Secretary's Office and the Society's Rules. The materials used in the construction and the workmanship are of good quality. They have been satisfactorily fitted on board and their safety valves have been adjusted under steam to a pressure of 200 lb. In my opinion they are eligible for notation in the Register Book of:-

253 (A/T) pressure 200 lb.

Safety valves' washers:	port.	4th	Superheater
Port Boiler	<u>27-2</u>	<u>26-2</u>	<u>6-2</u>
St. "	<u>29-2</u>	<u>24-2</u>	<u>2-2</u>

Survey Fee 24.00 When applied for, 9.4.1937  
Travelling Expenses (if any) £ 6.00 When received, 14.5.1937

Committee's Minute

FRI 30 APR 1937

Assigned

See Item J.E. 22296



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