

## REPORT ON BOILERS.

No. 9647.

Received at London Office

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Date of writing Report 26 June 1935 When handed in at Local OfficePort of CopenhagenNo. in Survey held at Copenhagen  
Reg. Book.Date, First Survey 18<sup>th</sup> December 34Last Survey 20<sup>th</sup> June 1935(Number of Visits 23)Gross 9109.35Tons Net 5543.37No. 20796 on the Twin Screw Motor Tanker "PETTER"

Master

Built at CopenhagenBy whom built Apt. Burmeister & WainYard No. 613When built 1935Engines made at CopenhagenBy whom made Apt. Burmeister & WainEngine No. 2341When made 1935Boilers made at CopenhagenBy whom made Apt. Burmeister & WainBoiler No. 1884When made 1935Nominal Horse Power 811Owners A/S Jensen & Roder IIIPort belonging to Arundal

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

Supply: The United Steel Co., Sheffield. Tubes: The British Columbia Tube Co., Swansea, Rhineland. Steel Bars: Espir.Manufacturers of Steel Plates: The Steel Coy. of Scotland, Farnham. The Brownlie Boiler Works (Letter for Record S.)Total Heating Surface of Boilers 2 x 1300 sq. feet. Is forced draught fitted yes Coal or Oil fired oil & exhaustNo. and Description of Boilers 2 off cylindrical horizontal single ended Working Pressure 180 lbs/0"Tested by hydraulic pressure to 320 lbs/0" Date of test 15.4.35 No. of Certificate 567-68 Can each boiler be worked separately yesArea of Firegrate in each Boiler - No. and Description of safety valves to each boiler 2 off direct spring loaded, 75 lbs diamArea of each set of valves per boiler (per Rule 8.33 0" as fitted 13.7 0" Pressure to which they are adjusted 180 lbs Are they fitted with easing gear yesIn case of donkey boilers, state whether steam from main boilers can enter the donkey boiler yesSmallest distance between boilers or uptakes and bunkers or woodwork no woodwork Is oil fuel carried in the double bottom under boilers noSmallest distance between shell of boiler and tank top plating Boilers placed on a platform in the top of the engine room Is the bottom of the boiler insulated yesLargest internal dia. of boilers 11' 5" Length 10' - 11 1/4" Shell plates: Material S. cl. Steel Tensile strength 30.3-31.8 tons/0"Thickness 1" Are the shell plates welded or flanged no Description of riveting: circ. seams double rivetedlong. seam 266 butt straps, 36 rivets Diameter of rivet holes in (circ. seams 1 1/8" Pitch of rivets 3 7/16" long. seams 1 7/16" 7 5/8"Percentage of strength of circ. end seams (plate 67.4 rivets 46.7 Percentage of strength of circ. intermediate seam (plate 86.1 rivets 89.9Percentage of strength of longitudinal joint (plate 86.1 rivets 89.9 combined 90.1 Working pressure of shell by Rules 192 lbs/0"Thickness of butt straps (outer 1" inner 1" No. and Description of Furnaces in each Boiler 2 off corrugated Dighton sectionMaterial S. cl. Steel Tensile strength 28.2-29.5 tons/0" Smallest outside diameter 3' - 4 1/8"Length of plain part (top - bottom - Thickness of plates (crown 9/16" 1/32" Description of longitudinal joint noneDimensions of stiffening rings on furnace or c.c. bottom - Working pressure of furnace by Rules 203 lbs/0"End plates in steam space: Material S. cl. Steel Tensile strength 28.0-28.8 lbs/0" Thickness 1" Pitch of stays 17" x 14"How are stays secured Screwed in both plates nuts inside & outside Working pressure by Rules 186 lbs/0"Tube plates: Material (front S. cl. Steel back S. cl. Steel Tensile strength 28.0-28.8 lbs/0" Thickness 3/4"Mean pitch of stay tubes in nests 8 1/16" Pitch across wide water spaces 14" Working pressure (front 233 lbs back 225 lbsGirders to combustion chamber tops: Material S. cl. Steel Tensile strength 30.3 tons/0" Depth and thickness of girderat centre 9" x (2 x 3/4") Length as per Rule 2' - 5 1/4" Distance apart 8 1/2" No. and pitch of staysin each 3 off 1 1/2" - 7" apart Working pressure by Rules 260 lbs Combustion chamber plates: Material S. cl. SteelTensile strength 29.0-29.3 lbs/0" Thickness: Sides 9/16" 1/32" Back 7/8" Top 9/16" 1/32" Bottom 3/4"Pitch of stays to ditto: Sides 7" x 8 1/2" Back 7 1/2" x 7 1/2" Top 7" x 8 1/2" Are stays fitted with nuts or riveted over in end platesWorking pressure by Rules Back: 240 lbs/0" Front plate at bottom: Material S. cl. Steel Tensile strength 28.0-28.8 lbs/0"Thickness 1" Lower back plate: Material S. cl. Steel Tensile strength 28.0-28.8 lbs/0" Thickness 1"Pitch of stays at wide water space α = 20" Are stays fitted with nuts or riveted over nuts inside & outsideWorking Pressure 231 lbs/0" Main stays: Material S. cl. Steel Tensile strength 28.2-31.2 tons/0"Diameter (At body of stay 2 3/4" or 2 1/2" Over threads 3" - 2 3/4" No. of threads per inch 11 Area supported by each stay 238 0"Working pressure by Rules 232 lbs Screw stays: Material S. cl. Steel Tensile strength 28.2-31.2 tons/0"Diameter (At turned off part 1 1/2" or 1 1/2" Over threads 1 1/2" No. of threads per inch 11 Area supported by each stay 59.5 0"

005541-005548-00251

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Steel Turbine Motor Tanker PETTER of Trondal  
 Yard No 613 by Messrs Burmeister & Wain's Maskin-og Skibsbyggeri, Copenhagen

### The auxiliary machinery.

2 off centrifugal cooling water pumps, Capacity 170 Tons/hour each  
 2 off plunger bilge and sanitary pumps, cyl. dia 6 1/2" stroke 9", Capacity 26 Tons/hour each  
 1 off gear wheel oil fuel transfer pump, Capacity 30 Tons per hour.  
 2 off " lubricating oil pumps " 95 " " " each  
 1 off fuel oil circulating pump, spindle pump, Capacity 6.5 Tons per hour.  
 1 off CO<sub>2</sub> compressor for provision.  
 1 off centrifugal cooling water pump for refrigerating machinery for provision  
 all driven by electromotors.

1 off duplex ballast pump and circulating pump 7 1/2" x 10 1/4" x 12"  
 2 " feed pumps for the donkey boilers 5 1/4" x 3 1/2" x 8"  
 2 " fuel oil pumps for oil fuel burning apparatus, Capacity 2.75 Tons/hour each  
 1. duplex ballast pump in the forward pump room " 50 Tons/hour.  
 1. " oil fuel transfer pump " " " 50 Tons/hour.  
 2. cargo oil pumps (Hayward, Taylor, Worthington) " 350 " " each

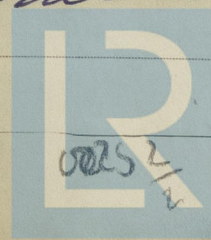
Two 2-cylinder 2 I.C.E.S. heavy oil engines 220 3/4" cylinder diam. by 370 3/4" stroke, B.H.P. = 120 at 400 revolutions per minute each working a 80 kilowatts compound wound generator giving electric current at 220 Volts pressure for the following purposes

2 off 50 H.P. shunt wound electromotors for cooling water and lubricating oil pumps  
 1. 10 " " " " bilge and sanitary pumps  
 1. 10 " " " " oil fuel transfer pump  
 1. 2 " " " " oil fuel circulating pump  
 1. 2.5 " " " " oil fuel purifier  
 1. 2.5 " " " " lubricating oil purifier  
 1. 3.5 " " " " workshop.  
 1. 8.5 " " " " CO<sub>2</sub> compressor.  
 1. 2 " " " " cooling water pump for refrigerating machinery  
 1. 24 " " " " rotary transformer  
 1. 20 " " " " steering engine  
 2. 8. some " " " " turning gear.  
 1. 0.33 compound " " " " grinding machine.  
 2. 90 kwts. oil heater.  
 1. 20 HP compound wound electromotor for the steering gear (Brown Brothers & W.H. Allen Bedford)

The foregoing is a correct description  
 AKTIESELSKABET  
 p. pa. BURMEISTER & WAIN'S MASKIN-og SKIBSBYGGERI

*[Signature]*

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Working pressure by Rules 218 1/2 Are the stays drilled at the outer ends no Margin stays: Diameter 1 3/4"  
 No. of threads per inch 11 Area supported by each stay 82.50 Working pressure by Rules 220 1/2  
 Tubes: Material 3.41 Steel External diameter 2 1/2" Thickness 5/16" No. of threads per inch 11  
 Pitch of tubes 3 1/2" x 3 5/8" Working pressure by Rules 230 1/2 Manhole compensation: Size of opening in  
 shell plate 12" x 16" Section of compensating ring 34" x 28" x 1" No. of rivets and diameter of rivet holes 46 off 1 1/2" diam.  
 Outer row rivet pitch at ends 5" Depth of flange if manhole flanged 3 1/2" Steam Dome: Material -  
 Tensile strength Thickness of shell Description of longitudinal joint  
 Diameter of rivet holes Pitch of rivets Percentage of strength of joint Plate  
 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 Manufacturers of Tubes  
 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 As 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 yes

AKTIESELSKABET  
 BURMEISTER & WAIN'S MASKIN-og SKIBSBYGGERI  
 Manufacturer.

Dates of Survey { During progress of work in shops - - - 1/2-3/4-4/1-8/1-12/1-1/2-2/3-1/4-15/4-3/5 Are the approved plans of boiler and superheater forwarded herewith yes  
 while building { During erection on board vessel - - - 24/1-7/5-8/5-22/5-10/5-17/5-27/5-3/5-1/6 Total No. of visits 23  
8/6-12/6-14/6-15/6-17/6-20/6-1935

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

The above boilers have been built and fitted outboard under Special Survey in accordance with the Rules, the approved plans and the requirements contained in the Secretary's letters Dated 14/8-34

The material used in construction has been tested as required by the Rules either by us or as per certificates produced by the builders and the workmanship is good throughout.

Two duplex feed pumps 5 1/4" x 3 1/2" x 8" has been fitted.

Survey Fee Fr. 388.27 When applied for 5.7 1935  
 Travelling Expenses (if any) - When received 26.8 1935

*[Signature]*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FR. 12 JUL 1935

FR. 23 AUG 1935

Assigned

See minute on  
 H. Mahy Rpt.

FR. 28 FEB 1936