

# REPORT ON BOILERS.

No. 34719

Received at London Office.

Date of writing Report.....19..... When handed in at Local Office 10 July 1947 Port of SUNDERLAND

No. in Survey held at SUNDERLAND Date, First Survey see Rpt 4 Last Survey X 19.....

on the S/S MARTIN CARL (Number of Visits.....X.....) Tons { Gross 1498.97 Net 1370.60

Master SUNDERLAND Built at SUNDERLAND By whom built S.R. Austin & Son Ltd. Yard No. 389 When built 1947

Engines made at SUNDERLAND By whom made NORTH EASTERN MARINE ENG. CO. LTD. Engine No. 4154 When made 1947

Boilers made at SUNDERLAND By whom made NORTH EASTERN MARINE ENG. CO. LTD. Boiler No. 4154 When made 1947

Nominal Horse Power 386 Owners R/S DAMPSKELSK HEIMDAL Port belonging to COPENHAGEN

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel COLVILLES (Letter for Record S)

Total Heating Surface of Boilers 4740 sq ft Is forced draught fitted YES Coal or Oil fired OIL

No. and Description of Boilers TWO SINGLE ENDED MULTITUBULAR Working Pressure 220 LBS/SQ. IN.

Tested by hydraulic pressure to 380 LBS/SQ. IN. Date of test 12.5.47 No. of Certificate 4662 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 2 1/4" DIAM COCKBURN'S IMPROVED HIGH LIFT

Area of each set of valves per boiler { per Rule 6.4 sq in. as fitted 7.8 sq in. Pressure to which they are adjusted 220 LBS/SQ. IN. Are they fitted with easing gear YES

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler NO

Smallest distance between boilers or uptakes and bunkers or woodwork 3'-9" Is oil fuel carried in the double bottom under boilers NO

Smallest distance between shell of boiler and tank top plating 1'-9" Is the bottom of the boiler insulated YES

Largest internal dia. of boilers 14'-9 5/32" Length 12'-6" Shell plates: Material STEEL Tensile strength 29/32 ST.

Thickness 1 1/2" Are the shell plates welded or flanged NO Description of riveting: circ. seams { end D.R. LAP inter 4 5/16"

Long. seams T.R. D.B.S. Diameter of rivet holes in { circ. seams 1 15/32" long. seams 1 15/32" Pitch of rivets 4 5/16" 10 3/8"

Percentage of strength of circ. end seams { plate 65.9% rivets 43.8% Percentage of strength of circ. intermediate seam { plate 85.49% rivets 87.91% combined 88.48% Working pressure of shell by Rules 221 LBS/SQ. IN.

Thickness of butt straps { outer 1 3/32" inner 1 7/32" No. and Description of Furnaces in each Boiler 3 - DEIGHTON TYPE

Material STEEL Tensile strength 26/30 T. Smallest outside diameter 3'-5 17/32"

Length of plain part { top 6 3/4" bottom 6 3/4" Thickness of plates { crown 4 1/64" bottom 4 1/64" Description of longitudinal joint FIRE-WELD

Dimensions of stiffening rings on furnace or c.c. bottom YES Working pressure of furnace by Rules 225 LBS/SQ. IN.

End plates in steam space: Material STEEL Tensile strength 26/30 T. Thickness 1 1/32" Pitch of stays 20 1/2" x 20 1/2"

How are stays secured NUTS INTERNAL & EXTERNAL Working pressure by Rules 221 LBS/SQ. IN.

Tube plates: Material { front STEEL back STEEL Tensile strength { 26/30 T. Thickness { 7/8" 29/32"

Mean pitch of stay tubes in nests 9" Pitch across wide water spaces 14" x 7 1/2" Working pressure { front 343 LBS/SQ. IN. back 372 LBS/SQ. IN.

Girders to combustion chamber tops: Material STEEL Tensile strength 29/32 ST. Depth and thickness of girder

centre 11 3/4" x 2 @ 1" Length as per Rule 3'-10 1/2" Distance apart 9" No. and pitch of stays

each 3 @ 11 1/8" Working pressure by Rules 228 LBS/SQ. IN. Combustion chamber plates: Material STEEL

Tensile strength 26/30 T. Thickness: Sides 27/32" Back 25/32" Top 27/32" Bottom 27/32"

Pitch of stays to ditto: Sides 11 1/8" x 10" Back 11 1/8" x 8 1/8" Top 11 1/8" x 9" Are stays fitted with nuts or riveted over YES

Working pressure by Rules 220 LBS/SQ. IN. Front plate at bottom: Material STEEL Tensile strength 26/30 T.

Thickness 7/8" Lower back plate: Material STEEL Tensile strength 26/30 T. Thickness 31/32"

Pitch of stays at wide water space 16 1/5" x 8 7/8" Are stays fitted with nuts or riveted over YES

Working pressure 228 LBS/SQ. IN. Main stays: Material STEEL Tensile strength 28/32 T.

Diameter { At body of stay 3 1/4" No. of threads per inch 6 Area supported by each stay 20 1/2" x 20 1/2"

Working pressure by Rules 221 LBS/SQ. IN. Screw stays: Material STEEL Tensile strength 26/30 T.

Diameter { At turned off part 2 1/8" 2" 1 7/8" No. of threads per inch 9 Area supported by each stay 13.8125" x 11.25"



Working pressure by Rules. 242 lbs/sq. in. Are the stays drilled at the outer ends. NO. Margin stays: Diameter { At turned off part. 2 1/8" or 2 1/2" Over threads. 2"  
No. of threads per inch. 9 Area supported by each stay. 11 1/8" x 9" Working pressure by Rules. 244 lbs/sq. in.  
Tubes: Material. STEEL External diameter { Plain. 2 1/2" Stay. 2 1/2" Thickness { 8 W.G. 1/2" 7/16" 3/8" 5/16" No. of threads per inch. 9  
Pitch of tubes. 7 3/4" x 7 1/2" Working pressure by Rules. 222 lbs/sq. in. Manhole compensation: Size of opening  
shell plate. Section of compensating ring. No. of rivets and diameter of rivet holes.  
Outer row rivet pitch at ends. Depth of flange if manhole flanged. 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. 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. NORTH EASTERN MARINE (CONSTRUCTION CHAMBERS) TYPE. Manufacturers of

Number of elements. 24 WORKING 2 SPARE Material of tubes. SOLID DRAWN STEEL Tubes. TUBES LTD. Internal diameter and thickness of tubes. 1.148" x 7 W.G.  
Material of headers. SOLID DRAWN STEEL TUBES Tensile strength. 26-28 T/sq. in. Steel forgings. TUBES LTD. Thickness. 1" Can the superheater be shut off  
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. 3.1416 sq. in. 2" Are the safety valves fitted with easing gear. YES. Working pressure as  
Rules. 220 lbs/sq. in. Pressure to which the safety valves are adjusted. 220 lbs/sq. in. Hydraulic test pressure  
tubes. 1500 lbs/sq. in. forgings and castings. 660 lbs/sq. in. and after assembly in place. 440 lbs/sq. in. Are drain cocks  
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 NORTH EASTERN MARINE ENGINEERING CO. (1888) LTD.  
The foregoing is a correct description.

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

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

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

These boilers have been constructed under Special Survey and in accordance with the Secretary's letter and the Rule Requirements.

The workmanship and materials are good.

These boilers have been efficiently fitted on board the vessel, examined under steam, and their safety valves adjusted to working pressure 220 lbs/sq. in., accumulation test carried out with satisfactory result.

Survey Fee See Mchly Rpt. £ : 1 : When applied for. JUL 12 1947  
Travelling Expenses (if any) £ : 1 : When received. 19

Red Munro  
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute.

Assigned.

See F.E. Mchly. rpt.



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Foundation