

# REPORT ON BOILERS.

No. 18781

Received at London Office 9 OCT 1946

Date of writing Report 4-10-1946 When handed in at Local Office 5-10-1946 Port of WEST HARTLEPOOL

No. in Survey held at WEST HARTLEPOOL Date, First Survey 7<sup>th</sup> November, 1945 Last Survey 30<sup>th</sup> Sept., 1946

g. Book.

on the STEEL SCREW STEAMER "MALMO"

(Number of Visits 73) Gross 1778.96 Tons Net 734.47

Built at WEST HARTLEPOOL By whom built WH. GRAY & CO. LTD Yard No. 1191 When built 1946.

Engines made at WEST HARTLEPOOL By whom made CENTRAL MARINE ENGINE WORKS. Engine No. 1191 When made 1946.

Boilers made at WEST HARTLEPOOL By whom made CENTRAL MARINE ENGINE WORKS Boiler No. 1191 When made 1946

nominal Horse Power 417. Owners ELLERMAN'S WILSON LINE. Port belonging to HULL.

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

Manufacturers of Steel Steel & of Scotland & of Sheffield & of Stoddingham (Letter for Record S. ✓)

Total Heating Surface of Boilers 4552 sq. ft. 1741 sq. ft. Is forced draught fitted Yes. ✓ Coal or Oil fired OIL. ✓

No. and Description of Boilers 2 single ended multitubular Working Pressure 210 lbs. ✓

Tested by hydraulic pressure to 365 lbs. Date of test 13-6-46 No. of Certificate 4066. Can each boiler be worked separately Yes. ✓

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler 2-2 1/4 COCKBURNS 1HL. ✓

Area of each set of valves per boiler { per Rule 6.325 sq. ft. as fitted 7.952 sq. ft. Pressure to which they are adjusted 210 lbs. 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 2'-6" Is oil fuel carried in the double bottom under boilers No. ✓

Smallest distance between shell of boiler and tank top plating 21 3/8" Is the bottom of the boiler insulated Yes. ✓

Largest internal dia. of boilers 14'-0" Length 11'-9" Shell plates: Material Steel Tensile strength 29-33 tons ✓

Thickness 1 3/8" Are the shell plates welded or flanged No. ✓ Description of riveting: circ. seams { end P.R. LAP. inter. -

Long. seams TR Double butt strap Diameter of rivet holes in { circ. seams 1 3/16" long. seams 1 3/16" Pitch of rivets { 3.998" 9 3/4" ✓

Percentage of strength of circ. end seams { plate 64. rivets 46.8 Percentage of strength of circ. intermediate seam { plate 85.25 rivets 90 Working pressure of shell by Rules -

Percentage of strength of longitudinal joint { plate 85.25 rivets 90 combined 88.5

Thickness of butt straps { outer 1 1/16" inner 1 3/16" No. and Description of Furnaces in each Boiler 3 corrugated Deighton section ✓

Material Steel Tensile strength 26-30 tons Smallest outside diameter 3'-5 1/4" ✓

Length of plain part { top - bottom - Thickness of plates { crown 5/8" bottom 5/8" Description of longitudinal joint welded. ✓

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules -

Stays in steam space: Material Steel Tensile strength 26-30 tons Thickness 1 1/32" Pitch of stays 19 3/8" x 19 3/4" ✓

How are stays secured Double nuts Working pressure by Rules -

Stays plates: Material { front Steel Tensile strength 26-30 tons Thickness 1 5/16" ✓ back Steel Tensile strength 26-30 tons Thickness 1 3/32" ✓

Pitch of stay tubes in nests 12 3/8" x 8 1/2" Pitch across wide water spaces 14" Working pressure { front - back -

Stays to combustion chamber tops: Material Steel Tensile strength 28-32 tons ✓ Depth and thickness of girder centre 8 3/4" x 1 3/4", 2-7 3/16" Length as per Rule 2'-7 3/16" Distance apart 9 1/2" ✓ No. and pitch of stays each 3 @ 8" ✓ Working pressure by Rules -

Tensile strength 26-30 tons Thickness: Sides 2 3/32" Back 2 3/32" Top 2 3/32" Bottom 2 3/32" ✓

Pitch of stays to ditto: Sides 9 1/2" x 8" Back 9 3/8" x 8 3/4" Top 9 1/2" x 8" Are stays fitted with nuts or riveted over No. ✓

Working pressure by Rules -

Front plate at bottom: Material Steel Tensile strength 26-30 tons ✓

Thickness 1 5/16" Lower back plate: Material Steel Tensile strength 26-30 tons Thickness 2 3/32" ✓

Pitch of stays at wide water space 14 3/8" x 9 3/8" Are stays fitted with nuts or riveted over No. ✓

Working Pressure -

Main stays: Material Steel Tensile strength 28-32 tons ✓

At body of stay, 3 7/8" No. of threads per inch 6 Area supported by each stay 19 3/4" x 19 3/8" ✓

Over threads -

Working pressure by Rules -

Screw stays: Material Steel Tensile strength 26-30 tons ✓

At turned off part, 1 3/4" No. of threads per inch 9 Area supported by each stay -

Over threads -



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Working pressure by Rules Are the stays drilled at the outer ends No ✓ Margin stays: Diameter { At turned off part, or Over threads } 2" x 2 1/2"

No. of threads per inch 9 ✓ Area supported by each stay 11 1/2" x 9 3/8" Working pressure by Rules -

Tubes: Material HRWS ✓ External diameter { Plain 3" Stay 5" } Thickness { 3/16" 1/4" 5/16" } No. of threads per inch 9 ✓

Pitch of tubes 4 1/4" x 4 1/8" ✓ Working pressure by Rules - Manhole compensation: Size of opening in shell plate 20" x 16" ✓ Section of compensating ring 3'-1" x 2'-9" No. of rivets and diameter of rivet holes 32 @ 1 1/2" ✓

Outer row rivet pitch at ends 10" ✓ Depth of flange if manhole flanged - ✓ Steam Dome: Material Wae ✓

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 Smokestack type ✓ Manufacturers of { Tubes Stewart & Slagden Steel forgings Solovides Steel castings - }

Number of elements 49 per Bk Material of tubes SP Steel Internal diameter and thickness of tubes 17 1/4" x 2 1/2"

Material of headers Steel Tensile strength 26-30 tons Thickness 1 1/16" 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 1.7671 sq" Are the safety valves fitted with easing gear Yes ✓ Working pressure as per Rules - Pressure to which the safety valves are adjusted 220 lbs ✓ Hydraulic test pressure: tubes 1000 lbs ✓ forgings and castings 1000 lbs ✓ and after assembly in place 630 lbs ✓ 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, (J.H. Gearing) Manufacturer.

Dates of Survey { During progress of work in shops - - } Are the approved plans of boiler and superheater forwarded herewith Yes (If not state date of approval.)

{ During erection on board vessel - - - } Total No. of visits -

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 and superheaters have been constructed under special survey and in accordance with the approved plans for a working pressure of 210 lbs per square inch.

The materials and workmanship have been found good.

Upon completion the boilers were tested in the presence of the undersigned by a hydraulic pressure of 365 lbs per square inch, showed no signs of weakness and were found tight and sound in every respect at that pressure.

Survey Fee ... £ : } When applied for, 19

Travelling Expenses (if any) £ : } When received, 19

Committee's Minute FRI. 8 NOV 1946

Assigned See F.E. Mucky. rpt.

Arthur W. Oxford.  
Engineer Surveyor to Lloyd's Register of Shipping.