

REPORT ON BOILERS.

No. 19370.

8 MAY 1951

Received at London Office.

Date of writing Report 2nd May. 1951. When handed in at Local Office 7th May. 1951. Port of MIDDLESBROUGH.

No. in Survey held at Stockton on Tees. Date, First Survey 12th October. Last Survey 27th April. 1951.

on the M.T. ASTRID ONSTAD. (Number of Visits 13.) Tons { Gross.....
Net.....

Master Built at By whom built Yard No. When built

Engines made at By whom made Engine No. When made

Boilers made at Stockton-on-Tees. By whom made Stockton Chemical Engineers & Riley Boilers Ltd., Boiler No. 7183 When made 1951.

Nominal Horse Power Owners Port belonging to

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Appleby Frodingham Steel Co. Ltd., (Letter for Record S)

Total Heating Surface of Boilers 2720 ✓ Is forced draught fitted Yes Coal or Oil fired Yes.

No. and Description of Boilers 1 S.E. Multitubular Marine. Working Pressure 150 lbs./sq.in.

Tested by hydraulic pressure to 275 lbs. Date of test 27.4.51 No. of Certificate 7344. Can each boiler be worked separately

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler

Area of each set of valves per boiler { per Rule.....
as fitted..... Pressure to which they are adjusted..... Are they fitted with easing gear.....

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler

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

Smallest distance between shell of boiler and tank top plating Is the bottom of the boiler insulated

Largest internal dia. of boilers 14'3" ✓ Length 11'7.11/16" ✓ Shell plates: Material steel. ✓ Tensile strength 29-33. ✓

Thickness 31/32" ✓ Are the shell plates welded or flanged No. Description of riveting: circ. seams { end.....
inter.....
long. seams { 1.1/16" ✓ Pitch of rivets { 3.38" ✓
7.7/16" ✓

Percentage of strength of circ. end seams { plate.....
rivets..... 43.1 ✓ Percentage of strength of circ. intermediate seam { plate.....
rivets..... 85.65

Percentage of strength of longitudinal joint { plate.....
rivets..... 91.5 Working pressure of shell by Rules W.P. of Shell 153 lbs./sq.in.

Thickness of butt straps { outer.....
inner..... No. and Description of Furnaces in each Boiler 3 - Deighton. ✓

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

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

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules W.P. of furnace 174 lbs./sq.in.

End plates in steam space: Material steel. ✓ Tensile strength 26-30 ✓ Thickness 1" ✓ Pitch of stays 19x17 1/2" ✓

How are stays secured double nuts and washers. ✓ Working pressure by Rules 167 lbs. per sq. inch.

Tube plates: Material { front.....
back..... steel. ✓ Tensile strength { 26-30 ✓ Thickness { 3/4" ✓
185 lbs./sq" ✓

Mean pitch of stay tubes in nests 11.1/16" ✓ Pitch across wide water spaces 13 1/2" ✓ Working pressure { front.....
back..... 164 lbs/sq." ✓

Girders to combustion chamber tops: Material steel Tensile strength 28-32 ✓ Depth and thickness of girder

at centre 7 3/4" - 2 @ 5/8" ✓ Length as per Rule 2'6 1/2" ✓ Distance apart 9" ✓ No. and pitch of stays

in each 2-10" ✓ Working pressure by Rules 157 lbs/sq.in. ✓ Combustion chamber plates: Material steel. ✓

Tensile strength 26-30 ✓ Thickness: Sides 21/32" ✓ Back 21/32" ✓ Top 21/32" ✓ Bottom 21/32" ✓

Pitch of stays to ditto: Sides 9 x 10" ✓ Back 9 1/2 x 9 3/4" ✓ Top 10" x 9" ✓ Are stays fitted with nuts or riveted over nuts ✓

Working pressure by Rules 162 lbs./sq.in. ✓ Front plate at bottom: Material steel ✓ Tensile strength 26-30 ✓

Thickness 7/8" ✓ Lower back plate: Material steel. ✓ Tensile strength 21-30 ✓ Thickness 13/16" ✓

Pitch of stays at wide water space 13 1/2" ✓ Are stays fitted with nuts or riveted over nuts. ✓

Working pressure 177 lbs./sq. in. ✓ Main stays: Material steel. ✓ Tensile strength 28-32 ✓

Diameter { At body of stay.....
or
Over threads..... 2 5/8" ✓ No. of threads per inch 6 ✓ Area supported by each stay 332.5 Sq.in. ✓

Working pressure by Rules 166 lbs./sq.in. ✓ Screw stays: Material steel. Tensile strength 26.30 ✓

Diameter { At turned off part.....
or
Over threads..... 1 5/8" ✓ No. of threads per inch 9 T.P.I. ✓ Area supported by each stay 92.63 sq.in. ✓

5A 19370.

Working pressure by Rules 164 lbs./sq.in. Are the stays drilled at the outer ends No. Margin stays: Diameter { At turned off part, 1 1/2" or Over threads, 1 1/2" No. of threads per inch 9 Area supported by each stay 112 sq. in. Working pressure by Rules 162 lbs./sq. in. Tubes: Material H.R. Weldless S External diameter { Plain 2 1/2" Stay 2 1/2" Thickness { 5/16" No. of threads per inch 9 Pitch of tubes 3 3/4 x 3 5/8 Working pressure by Rules 230 lbs./sq. in. Manhole compensation: Size of opening 624 Shell plate 21" x 17" Section of compensating ring 7" 1 1/8" No. of rivets and diameter of rivet holes 48-1.1/16" Outer row rivet pitch at ends 7 1/2" Depth of flange if manhole flanged 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 Manufacturers of { Tubes Steel forgings 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 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 Rules Pressure to which the safety valves are adjusted Hydraulic test pressure tubes forgings and castings and after assembly in place Are drain cocks 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

The foregoing is a correct description,

1950. Dates of Survey while building { During progress of work in shops - Oct. 12. Nov. 2. 30. Dec. 14. Jan. 15. Feb. 2. 21. Mar. 8. During erection on board vessel - Apr. 5. 10. 17. 18. 27. Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval) Total No. of visits 13

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

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This Boiler has been built under Special Survey and in accordance with the Rule Requirements and approved plan. The materials and workmanship are good and on completion the boiler was hydraulically tested to 275 lbs. per sq. inch and found satisfactory. This boiler is being despatched to Sweden for Gotaverken's Contract No.660.

Survey Fee ... £ 45 : 7 : 0 When applied for, 7. 5. 19. 51. Travelling Expenses (if any) £ : : When received, 19.

C. Horner Stuart Engineer Surveyor to Lloyd's Register of Shipping

FRI. 2 MAY 1952

Committee's Minute Assigned See F.E. Mucky. rpt.