

REPORT ON BOILERS.

No. 3469 b

3 JUL 1930

Received at London Office

Date of writing Report 16/8/30 When handed in at Local Office 1/7/30 to 30 Port of Oslo

No. in Reg. Book. 10 Survey held at Trondhjem and Langesund Date, First Survey 12/7/29 Last Survey 12th June 1930

on the steel single screw steam vessel "TORRIDAL"

(Number of Visits 17) Tons { Gross 1381 Net 780

Master Christensen Built at Langesund By whom built Langesunds Mek. Verksted Ward No. 9 When built 1930

Engines made at Trondhjem By whom made Trondhjem's Mek. Verksted Engine No. 274 When made 1930

Boilers made at Trondhjem By whom made Trondhjem's Mek. Verksted Boiler No. 535-536 When made 1930

Nominal Horse Power 122 Owners Ingv. Björneboes Rederi A/S Port belonging to Kristiansand

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Stewarts & Lloyds; Apply Iron Co., Scottish Iron & Steel Co., William Beardmore & Co., David Colville & Sons, Tinsley Iron & Steel Co., Lindholm, Kotala, Raufoss Aun (Letter for Record E. 18/4/29 28/10/29)

Total Heating Surface of Boilers 2097.2 ft² Is forced draught fitted Yes Coal or Oil fired coal

No. and Description of Boilers 2 cylindrical, multitubular 2SR Working Pressure 205 lb./in²

Tested by hydraulic pressure to 357.5 lb./in² Date of test 14/12/29 No. of Certificate 95-96 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 25 ft² No. and Description of safety valves to each boiler Two, precisional High Lift

Area of each set of valves per boiler per Rule 3.59 3.94 for High Lift as fitted 3.98 Pressure to which they are adjusted 205 lb./in² Are they fitted with easing gear Yes

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

Smallest distance between boilers or uptakes and bunkers or woodwork 9" Is oil fuel carried in the double bottom under boilers Yes

Smallest distance between shell of boiler and tank top plating open bottom in boiler space the bottom of the boiler insulated Yes

Largest internal dia. of boilers 10'-3" Length 11'-0" Shell plates: Material S.M. steel Tensile strength 28-35 tons/in²

Thickness 31/32" Are the shell plates welded or flanged flanged Description of riveting: circ. seams double

long. seams treble Diameter of rivet holes in { circ. seams 1 1/4" } Pitch of rivets { 3 1/2" } { long. seams 1 1/8" } 7 7/16"

Percentage of strength of circ. end seams { plate 44.7 } rivets 88.0 Percentage of strength of circ. intermediate seam { plate 85.7 } rivets 88.0

Percentage of strength of longitudinal joint { plate 85.7 } rivets 94.88 combined 90.33 Working pressure of shell by Rules 205.7 lb./in²

Thickness of butt straps { outer 3/4" } inner 7/8" No. and Description of Furnaces in each Boiler 2 Morrison's corrugated

Material S.M. steel Tensile strength 26-30 tons Smallest outside diameter 36"

Length of plain part { top 33/64" } bottom 33/64" Thickness of plates { crown 33/64" } bottom 33/64" Description of longitudinal joint Yes

Dimensions of stiffening rings on furnace or c.c. bottom Yes Working pressure of furnace by Rules 206.6

End plates in steam space: Material S.M. steel Tensile strength 28-35 tons Thickness 15/16" & 7/8" Pitch of stays 15" x 12 3/4"

How are stays secured Double nuts Working pressure by Rules 205.7 218.4 lb./in²

Tube plates: Material { front S.M. steel } back --- Tensile strength { 28-35 tons } Thickness { 15/16" } 7/8"

Mean pitch of stay tubes in nests 8 1/2" x 8" Pitch across wide water spaces 14" Working pressure { front 205.6 lb./in² } back 205.6 lb./in²

Girders to combustion chamber tops: Material S.M. steel Tensile strength 28-35 tons/in² Depth and thickness of girder

at centre 7/8" x 7/8" x 2 Length as per Rule 2'-7" - (13" + 3/4") Distance apart 7 1/2" No. and pitch of stays

in each 229" Working pressure by Rules 205.7 Combustion chamber plates: Material S.M. steel

Tensile strength 26-30 tons Thickness: Sides 215/32 Back 3/4" Top 215/32 Bottom 7/8"

Pitch of stays to ditto: Sides 9" x 8 1/8" Back 10" x 9 1/2" Top 7 1/2" x 9" Are stays fitted with nuts or riveted over Both

Working pressure by Rules Back 208.5, sides 211.4 Front plate at bottom: Material S.M. steel Tensile strength 26-30 tons/in²

Thickness 15/16" Lower back plate: Material S.M. steel Tensile strength 26-30 tons Thickness 7/8"

Pitch of stays at wide water space 9.5" x 14.5" Are stays fitted with nuts or riveted over nuts

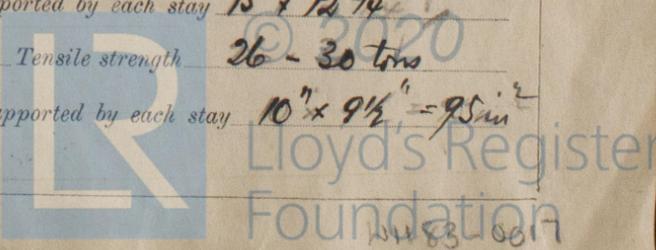
Working Pressure 208.6 lb./in² Main stays: Material S.M. steel Tensile strength 28-35 tons

Diameter { At body of stay, 2 3/8" } or --- No. of threads per inch 6 Area supported by each stay 15" x 12 3/4"

Working pressure by Rules 205.9 Screw stays: Material S.M. steel Tensile strength 26-30 tons

Diameter { At turned off part, 1 7/8", 1 7/8" & 2" } or --- No. of threads per inch 9 Area supported by each stay 10" x 9 1/2" = 95 in²

If not, state whether, and when, one will be sent? Is a Report also sent on the Hull of the Ship?



Working pressure by Rules 224.4 lbs./in^2 Are the stays drilled at the outer ends *No* Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part, } 2'' \\ \text{or} \\ \text{Over threads} \end{array} \right.$

No. of threads per inch 9 Area supported by each stay $12\frac{1}{4} \times 9.5''$ Working pressure by Rules 212.6 lbs./in^2

Tubes: Material *Steel* External diameter $\left\{ \begin{array}{l} \text{Plain } 3 \\ \text{Stay } 3 \end{array} \right.$ Thickness $\left\{ \begin{array}{l} \text{RING N}^\circ 8 \\ 3/8'' \end{array} \right.$ No. of threads per inch 10

Pitch of tubes $4\frac{1}{4} \times 4''$ Working pressure by Rules 237 lbs./in^2 Manhole compensation: Size of opening in shell plate $16 \times 12''$ Section of compensating ring $3\frac{1}{32}''$ No. of rivets and diameter of rivet holes $30 \times 1\frac{1}{16}''$

Outer row rivet pitch at ends $7\frac{3}{32}''$ 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 $\left\{ \begin{array}{l} \text{Plate } \checkmark \\ \text{Rivets } \checkmark \end{array} \right.$

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 *Schmidt type* Manufacturers of *Ottensener Eisenwerk, Altona*

Number of elements 14 per boiler Material of tubes *Seamless steel* Steel castings *Schmidt'sche Heissdampfrollschakt.*

Material of headers *cast steel* Tensile strength *Samburg cert. N^o 473* Thickness $35 \times 25 \text{ mm}$ 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 1.77 in^2 Are the safety valves fitted with easing gear *Yes* Working pressure as per Rules 205 lbs./in^2 Pressure to which the safety valves are adjusted 205 lbs./in^2 Hydraulic test pressure: tubes 710 lbs./in^2 castings 710 lbs./in^2 and after assembly in place 710 lbs./in^2 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*

A/S Langesunds Mek. Verksted *A/S TRONDHJEMS MEK. VERKSTED* Manufacturer.

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of work in shops} \text{ -- } 12/7, 12/8, 11/10, 12/10, 12/10, 3/10, 8/11, 19/12 \\ \text{During erection on board vessel} \text{ -- } 9/4, 10/4, 4/2, 13/3, 3/4, 15/5, 3/6, 12/6, 1930 \end{array} \right.$ Are the approved plans of boiler and superheater forwarded herewith $23/6/29$ (If not state date of approval.)

Total No. of visits 17

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.) *These boilers have been constructed in accordance with the approved plan. The steel materials used in the construction have been manufactured at approved works and tested by the Society's Surveyors as per Rules. The boilers have been tested by hydraulic pressure and on completion examined under steam pressure, when the safety valves, including the superheater's were adjusted to 205 lbs./in^2 . The workmanship throughout is of the best description*

Survey Fee ... *See Rpt. on machinery* When applied for, $7/6/1930$

Travelling Expenses (if any) ... When received, $19/6/1930$

Bertil Røh. Paalé
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **TUE. 15 JUL. 1930**

Assigned *See attached J.E. Ast 3469*



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