

## REPORT ON BOILERS.

No. 11091

Received at London Office

24.1.40

Date of writing Report 9 January 40. When handed in to Special Office

19

Port of

Copenhagen.

No. in Survey held at Aalborg and Nakskov Date, First Survey 12 January 1939 Last Survey 4 January 1940

Reg. Book.

on the Linge Se. Motor Tanker "SATURNUS"

(Number of Visits 78.)

Tons { Gross 9964.73.  
Net 5817.86.

Master Built at Nakskov. By whom built Nakskov Skibsværft Yard No. 91. When built 1940

Engines made at Copenhagen By whom made Burmeister &amp; Wain Engine No. 3000 When made 1940.

Boilers made at Aalborg By whom made Aalborg Værft A/S. Boilers No. 403-04 When made 1940.

Nominal Horse Power 188. Owners Peder A/B. Salørnæs. Port belonging to Stockholm.

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

Manufacturers of Steel Plates: Colvilles. Tubes: Stewarts &amp; Lloyds. Stays: Strömnsnäs (Letter for Record S)

Total Heating Surface of Boilers  $2 \times 131 \text{ m}^2$  Is forced draught fitted *yes*. Coal or Oil fired *Oil fired*.No. and Description of Boilers 2 off - multitubular Working Pressure  $12 \text{ kg/cm}^2$  171 lb.Tested by hydraulic pressure to  $21.5 \text{ kg/cm}^2$  Date of test 25.8.39 No. of Certificate 649-50 Can each boiler be worked separately *yes*.Area of Firegrate in each Boiler *✓* No. and Description of safety valves to each boiler 1 off - double valves direct spring loadedArea of each set of valves per boiler { per Rule 7373  $\text{mm}^2$   
as fitted 11386  $\text{mm}^2$  Pressure to which they are adjusted 170 lb/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 *✓*Smallest distance between boilers on uptakes and bunkers on ~~woodwork~~ *40"* Is oil fuel carried in the double bottom under boilers *✓*Smallest distance between shell of boiler and tank top plating *from Eng. room bulkhead* Is the bottom of the boiler insulated *yes*Largest internal dia. of boilers 3480  $\text{mm}$  Length 3100  $\text{mm}$  Shell plates: Material S.M. Steel Tensile strength 44-55  $\text{kg/mm}^2$ Thickness 24  $\text{mm}$  Are the shell plates welded or flanged *✓* Description of riveting: circ. seams { end double zigzag  
inter. 85.5  $\text{mm}$ long. seams *lapped* Diameter of rivet holes in { circ. seams 26.5  $\text{mm}$   
long. seams 26.5  $\text{mm}$  Pitch of rivets 174.66  $\text{mm}$ .Percentage of strength of circ. end seams { plate 69.0  
rivets 44.0 Percentage of strength of circ. intermediate seam { plate  
rivets *✓*Percentage of strength of longitudinal joint { plate 84.8.  
rivets 85.6. Working pressure of shell by Rules  $12.5 \text{ kg/cm}^2$ .Thickness of butt straps { outer 20  $\text{mm}$   
inner 24  $\text{mm}$  combined 86.7.

No. and Description of Furnaces in each Boiler 2 off - corrugated.

Material S.M. Steel Tensile strength 41-47  $\text{kg/mm}^2$  Smallest outside diameter 997  $\text{mm}$ .Length of plain part { top *✓*  
bottom *✓* Thickness of plates { crown 13.5  $\text{mm}$   
bottom Description of longitudinal joint *✓*Dimensions of stiffening rings on furnace or c.c. bottom *✓* Working pressure of furnace by Rules  $13.7 \text{ kg/cm}^2$ End plates in steam space: Material S.M. Steel Tensile strength 41-47  $\text{kg/mm}^2$  Thickness 25  $\text{mm}$  Pitch of stays 432 x 355  $\text{mm}$ .How are stays secured *screwed into plates, nuts inside & outside* Working pressure by Rules  $12.9 \text{ kg/cm}^2$ Tube plates: Material { front S.M. Steel Tensile strength 41-47  $\text{kg/mm}^2$   
back --- Thickness 25  $\text{mm}$ Mean pitch of stay tubes in nests 208  $\text{mm}$  Pitch across wide water spaces 365  $\text{mm}$  Working pressure { front 15.5  $\text{kg/cm}^2$   
back 13.3  $\text{kg/cm}^2$ Girders to combustion chamber tops: Material S.M. Steel Tensile strength 44-55  $\text{kg/mm}^2$  Depth and thickness of girderat centre 215  $\text{mm}$ . 2 x 20  $\text{mm}$  Length as per Rule 644  $\text{mm}$  Distance apart 216  $\text{mm}$  No. and pitch of staysin each 2 off - 204  $\text{mm}$  Working pressure by Rules  $25.8 \text{ kg/cm}^2$  Combustion chamber plates: Material S.M. SteelTensile strength 41-47  $\text{kg/mm}^2$  Thickness: Sides 16  $\text{mm}$  Back 16  $\text{mm}$  Top 16  $\text{mm}$  Bottom 20  $\text{mm}$ .Pitch of stays to ditto: Sides 204 x 216  $\text{mm}$  Back 196 x 205  $\text{mm}$  Top 204 x 216  $\text{mm}$  Are stays fitted with nuts or riveted over *margin stays nuts inside & outside - other stays nuts inside riveted outside.*Working pressure by Rules 14.2-15.5-14.2-15.7  $\text{kg/cm}^2$  Front plate at bottom: Material S.M. Steel Tensile strength 41-47  $\text{kg/mm}^2$ .Thickness 25  $\text{mm}$  Lower back plate: Material S.M. Steel Tensile strength 41-47  $\text{kg/mm}^2$  Thickness 25  $\text{mm}$ .Pitch of stays at wide water space 205 x 365. Are stays fitted with nuts or riveted over *filled with nuts.*Working Pressure  $13.8 \text{ kg/cm}^2$  Main stays: Material S.M. Steel Tensile strength 44-55  $\text{kg/mm}^2$ .Diameter { At body of stay, 69.8  
or  
Over threads No. of threads per inch 9 Area supported by each stay 153360  $\text{mm}^2$ Working pressure by Rules  $15.9 \text{ kg/cm}^2$  Screw stays: Material S.M. Steel Tensile strength 41-47  $\text{kg/mm}^2$ Diameter { At turned off part, 38  $\text{mm}$   
or  
Over threads No. of threads per inch 9 Area supported by each stay 196 x 205  $\text{mm}^2$



Working pressure by Rules  $14.2 \text{ kg/cm}^2$  Are the stays drilled at the outer ends *no* Margin stays: Diameter { At turned off part,  $44.5 \text{ mm}$  or Over threads }  
No. of threads per inch *9* Area supported by each stay  $205 \times 290 \text{ mm}^2$  Working pressure by Rules  $14.1 \text{ kg/cm}^2$   
Tubes: Material *S.M. Steel* External diameter { Plain  $76 \text{ mm}$  Stay  $76 \text{ mm}$  Thickness {  $3.65 \text{ mm}$   $3/8"$  No. of threads per inch *9*  
Pitch of tubes  $104 \text{ mm}$  Working pressure by Rules  $13.5 \text{ kg/cm}^2$  Manhole compensation: Size of opening in  
shell plate  $405 \times 505 \text{ mm}$  Section of compensating ring *flanged* No. of rivets and diameter of rivet holes  $48 \text{ off} - 26.5 \text{ mm}$ .  
Outer row rivet pitch at ends  $179 \text{ mm}$  Depth of flange if manhole flanged  $90 \text{ mm}$  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 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 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 and  
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 per  
Rules Pressure to which the safety valves are adjusted Hydraulic test pressure:  
tubes forgings and 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*

The foregoing is a correct description,  
**ALBORG VERET A/S** Manufacturer.

Dates of Survey { During progress of work in shops -  $12/1 - 25/1 - 11/2 - 15/4 - 25/4 - 4/5 - 20/5 - 3/6 - 13/6$  Are the approved plans of boiler and superheater forwarded herewith. (If not state date of approval.)  
while building { During erection on board vessel -  $9/11 - 15/11 - 16/11 - 22/11 - 29/11 - 5/12 - 6/12$  Total No. of visits  $28$ .  
 $12/12 - 19/12 - 28/12 - 29/12 - 30/12 - 31/1 - 4/1940$

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.)

The above boilers have been constructed and fitted under special survey in accordance with the Society's Rules and the approved plan. The material has - as per certificates submitted - been tested and examined as per Rules and found satisfactory. The workmanship is of good description throughout. Recommend the notation "2 D.B. 170 lbs" to be made in the Register Book.

Survey Fee ... *kr. 425.00* When applied for, *19 40*  
Travelling Expenses (if any) *kr. 178.00* When received, *19*

*P. Langkilde Jensen. A. H. Vestberg.*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute  
Assigned *See Cpn J.C. 11091*