

REPORT ON BOILERS.

No. 32,866

Received at London Office MAY - 8 1940

Date of writing Report 192 When handed in at Local Office 102 - 4 MAY 1940 Port of *Sunderland*

No. in Survey held at *Sunderland* Date, First Survey *May 1 1940*

on the *Screw Steamer "GRAIGLAS"* (Number of Visits *4312* Gross Tons *2549* Net Tons *2549*)

Master *Sunderland* Built at *Sunderland* By whom built *J. L. Thompson & Son Ld.* Yard No. *598* When built *1940*

Engines made at *Sunderland* By whom made *G. Black (1938) Ld.* Engine No. *1219* When made *1940*

Boilers made at *Sunderland* By whom made *G. Black (1938) Ld.* Boiler No. *1219* When made *1940*

Nominal Horse Power *348* Owners *Graig Shipping Co Ld.* Port belonging to *Cardiff*

MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel *Appley & Haddingham Steel Co Ld.* (Letter for Record *S.*)

Total Heating Surface of Boilers *1380 sq (or oil)* Is forced draught fitted *no.* Coal or Oil fired *Both*

No. and Description of Boilers *One Single Ended multitubular marine.* Working Pressure *220.*

Tested by hydraulic pressure to *380* Date of test *24/1/40* No. of Certificate *4324* Can each boiler be worked separately *✓*

Area of Firegrate in each Boiler *34 sq* No. and Description of safety valves to each boiler *Two cockburn dup. High Lift.*

Area of each set of valves per boiler *per Rule 3.64 sq. as fitted 4.8 sq.* Pressure to which they are adjusted *220* 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 or woodwork *2'-0"* Is oil fuel carried in the double bottom under boilers *Yes.*

Smallest distance between shell of boiler and tank top plating *2'-0"* Is the bottom of the boiler insulated *Yes.*

Largest internal dia. of boilers *11'-9 1/16"* Length *10'-6"* Shell plates: Material *Steel* Tensile strength *29/33*

Thickness *1 5/32"* Are the shell plates welded or flanged *no.* Description of riveting: circ. seams *and D.R. Lap.*

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

long. seams *T.R.D.R.S.* Diameter of rivet holes in *1 1/4"* Pitch of rivets *3 3/4" 8 9/16"*

Percentage of strength of circ. end seams *plate 44.8 rivets 85.409* Percentage of strength of circ. intermediate seam *plate 92.15 rivets 89.2*

Percentage of strength of longitudinal joint *combined 89.2* Working pressure of shell by Rules *222.5*

Thickness of butt straps *outer 1 1/8" inner 1"* No. and Description of Furnaces in each Boiler *Two corrugated (Brighton).*

Material *Steel* Tensile strength *26/30* Smallest outside diameter *3'-5 9/16"*

Length of plain part *top 2 1/32" bottom 2 1/32"* Description of longitudinal joint *welded*

Dimensions of stiffening rings on furnace or *no.* bottom Working pressure of furnace by Rules *231*

End plates in steam space: Material *Steel* Tensile strength *26/30* Thickness *1 5/16"* Pitch of stays *15'-11"*

How are stays secured *Double nuts* Working pressure by Rules *227*

Tube plates: Material *Steel* Tensile strength *26/30* Thickness *3 1/32" 2 3/32" 2 3/32"*

Mean pitch of stay tubes in nests *9'-8 3/4"* Pitch across wide water spaces *14 1/2"* Working pressure *front 226 back 233*

Girders to combustion chamber tops: Material *Steel* Tensile strength *29/33* Depth and thickness of girder *22'-11"*

at centre *8 1/2" x 1 1/2"* Length as per Rule *28"* Distance apart *10 1/2"* No. and pitch of stays *2 @ 8 1/4"*

Working pressure by Rules *229.* Combustion chamber plates: Material *Steel*

Tensile strength *26/30* Thickness: Sides *3/4"* Back *23/32"* Top *3/4"* Bottom *3/4"*

Pitch of stays to ditto: Sides *10 1/2" 8 1/4"* Back *9 1/4" 8 1/8"* Top *10 1/2" 8 1/4"* Are stays fitted with nuts or riveted over *nuts*

Working pressure by Rules *222, 239* Front plate at bottom: Material *Steel* Tensile strength *26/30*

Thickness *3 1/32"* Lower back plate: Material *Steel* Tensile strength *26/30* Thickness *3 1/32"*

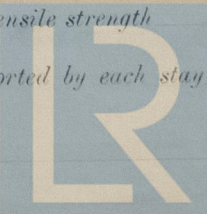
Pitch of stays at wide water space *14 1/2" 8 1/8"* Are stays fitted with nuts or riveted over *nuts*

Working Pressure *280* Main stays: Material *Steel* Tensile strength *28/32*

Diameter *At body of stay, 3" Over threads, 3 1/4"* No. of threads per inch *6* Area supported by each stay *22" x 15"*

Working pressure by Rules *227* Screw stays: Material *Steel* Tensile strength *26/30*

Diameter *At turned off part, 1 3/4" Over threads, 1 3/4"* No. of threads per inch *9* Area supported by each stay *9 1/4" x 8 1/4"*



Lloyd's Register Foundation

012711-012715-0050

Working pressure by Rules 241 Are the stays drilled at the outer ends 40. Margin stays: Diameter { At turned off part, 1 1/8" or 2 1/8" Over threads 221 246
No. of threads per inch 9 Area supported by each stay 1 1/8" x 8 1/8", 10 1/2" x 8 1/4" Working pressure by Rules 221 246
Tubes: Material S.D. Steel External diameter { Plain 3 1/4" Thickness 1/4" 5/16" 3/8" No. of threads per inch 9
Pitch of tubes 4 1/2" x 4 3/8" Working pressure by Rules 264 269 Manhole compensation: Size of opening

shell plate 16 x 12 (2nd 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 4" 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 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, 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 J.G.
The foregoing is a correct description,
GEORGE CLARK (1938) LTD.

Dates of Survey { During progress of work in shops - - - Please see Rpt. 4. Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)
while building { During erection on board vessel - - - J.G.
Total No. of visits

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
This boiler has been Constructed under Special Survey in accordance with the approved plan & the rules of the Society.
The materials & workmanship are good.
On Completion the boiler has been tested by hydraulic pressure of 38 lbs/sq. & found tight & sound.
The boiler has been securely fixed on board the vessel, fitted to burn oil fuel (F.P. above 150°F), Section 20 of the Rules has been Complied with, examined under steam & safety valves adjusted to working pressure in accordance with rule requirements.
In recommendation please see Mech. Rpt.

Survey Fee ... £ See Mech. Rpt. When applied for, 192
Travelling Expenses (if any) £ Rpt. When received, 192
J. St. Fraser.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 14 MAY 1940
Assigned See Std. J.E. 32866