Rpt. 5a.

REPORT ON BOILERS.

No. 49280

RETAIN

Date of writing Report 192 When handed in at Local Office 3 6 1929 Received at London Office 5 JUN 1929

No. in Reg. Book. Survey held at Glasgow Port of Glasgow

Date First Survey 1·11·28 Last Survey 31-5- 1929

on the new steel S/S "BEN WYVIS" (Number of Visits 67) Tons (Gross / Net)

Master Built at Glasgow By whom built Chas Connell & Co Ld. Yard No. 414 When built 1929

Engines made at Glasgow By whom made David Rowan & Co Ltd Engine No. 900 When made 1929

Boilers made at Glasgow By whom made David Rowan & Co Ltd Boiler No. 900 When made 1929

Nominal Horse Power 675 Owners Ben Line Steamers Ltd Port belonging to Leith

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

Manufacturers of Steel Gütehoffnungshütte A.G. Oberhausen. Wrapper plates by Jas Dunlop & Co Ld (Letter for Record (S))

Total Heating Surface of Boilers auxiliary 1700 sq. ft. Is forced draught fitted yes Coal or Oil fired coal

No. and Description of Boilers one single ended marine I.S.B. AUX. **Working Pressure** 220

Tested by hydraulic pressure to 380 Date of test 26-4-29 No. of Certificate 18270 Can each boiler be worked separately —

Area of Firegrate in each Boiler 53.6 sq. ft. No. and Description of safety valves to each boiler 2 high lift Improved

Area of each set of valves per boiler {per Rule ~~3.025 sq~~ 4.520" / as fitted ~~3.14 sq~~ Pressure to which they are adjusted 225 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'-3" Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating 2'-4" Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 13'-6" Length 11'-0" **Shell plates:** Material steel Tensile strength 28-32 tons

Thickness 1 11/32" Are the shell plates welded or flanged no Description of riveting: circ. seams {end DR / inter. —

long. seams DBS TR Diameter of rivet holes in {circ. seams F 1 5/16" B 1 3/8" / long. seams 1 3/8" Pitch of rivets {F 3.42" B 3.83" / 9 11/16"

Percentage of strength of circ. end seams {plate F 61.6 B 64.1 / rivets F 48.4 B 47.5 Percentage of strength of circ. intermediate seam {plate / rivets ✓

Percentage of strength of longitudinal joint {plate 85.8 / rivets 87.4 / combined 89 Working pressure of shell by Rules 224

Thickness of butt straps {outer 1" / inner 1 1/8" **No. and Description of Furnaces in each Boiler** 3 Deighton

Material steel Tensile strength 26-30 tons Smallest outside diameter 40 3/16"

Length of plain part {top ✓ / bottom Thickness of plates {crown / bottom } 39/64" Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules 224

End plates in steam space: Material steel Tensile strength 26-30 tons Thickness 1 1/4" Pitch of stays 19" × 14 3/8"

How are stays secured N.T. Working pressure by Rules 220

Tube plates: Material {front steel / back " Tensile strength {26-30 tons / " Thickness {15/16" / 13/16"

Mean pitch of stay tubes in nests 10 1/4" Pitch across wide water spaces 14" Working pressure {front 222 / back 226

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

at centre 2@7 3/4" × 7/8" Length as per Rule 31 1/2" Distance apart 8 3/8" No. and pitch of stays

in each 2@10" Working pressure by Rules 220 **Combustion chamber plates:** Material steel

Tensile strength 26-30 tons Thickness: Sides 47/64" Back 11/16" Top 47/64" Bottom 27/32"

Pitch of stays to ditto: Sides 10" × 8 3/8" Back 8 1/4" × 8 1/4" Top 8 3/8" × 10" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 223 **Front plate at bottom:** Material steel Tensile strength 26-30 tons

Thickness 15/16" **Lower back plate:** Material steel Tensile strength 26-30 tons Thickness 13/16"

Pitch of stays at wide water space 13 1/4" Are stays fitted with nuts or riveted over nuts

Working Pressure 223 **Main stays:** Material steel Tensile strength 28-32 tons

Diameter {At body of stay, / Over threads 3" & 2 3/4" No. of threads per inch 6 Area supported by each stay 339 & 295 sq"

Working pressure by Rules 231 & 222 **Screw stays:** Material steel Tensile strength 26-30 tons

Diameter {At turned off part, / or / Over threads 1 3/4" & 1 5/8" No. of threads per inch 9 Area supported by each stay 83.7 & 68 sq"

Working pressure by Rules 222 & 224 lbs. Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part, or Over threads 1 7/8"

No. of threads per inch 9 Area supported by each stay 88.6 □" Working pressure by Rules 242

Tubes: Material Iron External diameter { Plain 3 1/4 / Stay 3 1/4" Thickness { 7 W.G. / 5/16 & 3/8" No. of threads per inch 9

Pitch of tubes 4 1/2" × 4 3/8" Working pressure by Rules 280 **Manhole compensation:** Size of opening in shell plate 19 1/2" × 15 1/2" Section of compensating ring 9 1/4" × 1 11/32" No. of rivets and diameter of rivet holes 32 @ 1 3/8"

Outer row rivet pitch at ends 9 11/16" 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 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 None 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 .

The foregoing is a correct description,
For David Rowan & Co. Ltd
Arch. N. Grierson Manufacturer.

Dates of Survey while building { During progress of work in shops - - / During erection on board vessel - - - } See Accompanying Machy Report Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

Total No. of visits 67

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

The materials and workmanship are good.
The boiler has been constructed under Special Survey in accordance with the Rules. Satisfactorily fitted in the vessel and its safety valves adjusted under steam.

Survey Fee ... ... £ : : See Machy Rpt. When applied for, 192

Travelling Expenses (if any) £ : : When received, 192

L. C. Davis.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 4 JUN 1929

Assigned See Accompanying Machy Report