Two Furnace

REPORT ON BOILERS.

No. 94275

Received at London Office 12 OCT 1936

NEWCASTLE-ON-TYNE

Date of writing Report ____ 19__ When handed in at Local Office 9.10.1936 Port of ____

No. in Book. Survey held at Newcastle Date, First Survey 16 Jan.y Last Survey 8th Oct 1936

(Number of Visits ____)

on the Steel Screw Motor Tanker BRITISH ENDURANCE. Tons Gross 8303 Net 4939

Master ✓ Built at Newcastle By whom built Swan Hunter & Wigham Richardson Ltd Yard No. 1500 When built 1936

Engines made at Sunderland By whom made Wm Doxford & Sons Ltd Engine No. 190 When made 1936

Boilers made at Newcastle By whom made Swan Hunter & Wigham Richardson Ltd Boiler No. 1500 When made 1936

Donkey Boiler Nominal Horse Power 101. Owners British Tanker Co Ltd Port belonging to London

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Two Furnace Oil Fired

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

Manufacturers of Steel Steel Coy of Scotland (Letter for Record ____)

Total Heating Surface of Boilers 1520 sq ft Is forced draught fitted Yes Coal or Oil fired Oil fired only.

No. and Description of Boilers One S. Ended Cylindrical Multitubular. **Working Pressure** 150 lbs.

Tested by hydraulic pressure to 275 lbs Date of test 7/8/36 No. of Certificate 676 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler Oil fired No. and Description of safety valves to each boiler 2-2¼" Improved Hegh lift Spring loaded.

Area of each set of valves per boiler {per Rule 6.95 / as fitted 7.94} Pressure to which they are adjusted 150 lbs Are they fitted with easing gear Yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler no main boilers are fitted.

Smallest distance between boilers or uptakes and bunkers or woodwork 2'-10" Is oil fuel carried in the ~~double bottom~~ bunker under boilers Yes

Smallest distance between shell of boiler and tank top plating of Bunker 2'-10" Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 11'-4½" Length 11'-6" **Shell plates:** Material Steel Tensile strength 30/34 tons

Thickness 3/4" Are the shell plates welded or flanged No Description of riveting: circ. seams {end D.R. lap / inter. none}

Long. seams T.R. Dble butt straps Diameter of rivet holes in {circ. seams 7/8" / long. seams 13/16"} Pitch of rivets {2.89" / 5.75"}

Percentage of strength of circ. end seams {plate 69.79 / rivets 42.43} Percentage of strength of circ. intermediate seam {plate ✓ / rivets ✓}

Percentage of strength of longitudinal joint {plate 85.86 / rivets 86.41 / combined 89.02} Working pressure of shell by Rules 150 lbs.

Thickness of butt straps {outer 9/16 / inner 11/16} **No. and Description of Furnaces in each Boiler** 2 Deighton Corrugated.

Material Steel Tensile strength 26/30 tons Smallest outside diameter 37 3/16"

Length of plain part {top ✓ / bottom 2'-5" c.c. bott.} Thickness of plates {crown 13/32 / bottom 5/8" c.c. bott.} Description of longitudinal joint Furnaces. Fire welded

Dimensions of stiffening rings on furnace or c.c. bottom none Working pressure of furnace by Rules 155 lbs.

End plates in steam space: Material Steel Tensile strength 26/30 tons Thickness 7/8" Pitch of stays 16 3/8" × 14"

How are stays secured Dble nuts & washers Working pressure by Rules 151 lbs.

Tube plates: Material {front Stl. / back Stl.} Tensile strength {26/30 tons} Thickness {front 7/8" / back 5/8"}

Mean pitch of stay tubes in nests 9.375" Pitch across wide water spaces 13½ × 7½ Working pressure {front 158 lbs / back 156 lbs.}

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

at centre 7¾ × 1¼" Length as per Rule 29 21/32 Distance apart 9½" No. and pitch of stays

in each 2 @ 9" Working pressure by Rules 152 lbs **Combustion chamber plates:** Material Steel.

Tensile strength 26/30 tons Thickness: Sides 5/8" Back 23/32" Top 5/8" Bottom 5/8"

Pitch of stays to ditto: Sides 9½ × 9½" Back 9 × 8" Top 9½ × 9" Are stays fitted with nuts or riveted over C.C. margin & side stays are nutted both ends. Remainder of back stays are riveted inside C.C. & nuts on outside.

Working pressure by Rules 150 lbs. C.C. sides **Front plate at bottom:** Material Steel Tensile strength 26/30 tons.

Thickness 7/8" **Lower back plate:** Material Steel Tensile strength 26/30 tons Thickness 7/8"

Pitch of stays at wide water space 14 3/4 × 9" Are stays fitted with nuts or riveted over Nuts.

Working Pressure 210 lbs. **Main stays:** Material Steel Tensile strength 28/32 tons.

Diameter {At ~~body of stay~~ / or / Over threads} Two top stays 2½" others 2¼" No. of threads per inch 6 Area supported by each stay (15¾ × 14¾) − 3.26

Working pressure by Rules 151 lbs. **Screw stays:** Material Steel Tensile strength 26/30 tons

Diameter {At turned off part, / or / Over threads} 1 5/8" & 1½" No. of threads per inch 9 Area supported by each stay (9½ × 9½) − 1.73

Working pressure by Rules 172 lbs. *Are the stays drilled at the outer ends* No *Margin stays: Diameter* {*At turned off part, or Over threads*} 1 5/8"

No. of threads per inch 9 *Area supported by each stay* (10 3/4 × 9) − 1.73 *Working pressure by Rules* 160 lbs

Tubes: *Material* IRON *External diameter* {*Plain* 2 1/2 *Stay* 2 1/2} *Thickness* {10 WG. 3/8, 5/16} *No. of threads per inch* 9

Pitch of tubes 3 3/4 × 3 3/4" *Working pressure by Rules* 229 lbs **Manhole compensation:** *Size of opening in shell plate* 20" × 16" *Section of compensating ring* 7 3/4" × 3/4" × 2 *No. of rivets and diameter of rivet holes* 32 − 1 1/8"

Outer row rivet pitch at ends 8" *Depth of flange if manhole flanged* 2 1/2" **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 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 Yes.

The foregoing is a correct description,

FOR SWAN, HUNTER & W[...] LTD.

G. F. Swady (?) *Manufactu[rer]*

Dates of Survey while building	During progress of work in shops - -	See Machy Report
	During erection on board vessel - - -	

Are the approved plans of boiler and superheater forwarded herewith No. 15/11/[...] *(If not state date of approval.)*

Total No. of visits

Is this Boiler a duplicate of a previous case Yes *If so, state Vessel's name and Report No.* British Fame Nwc Rpt. 94124

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

The Boiler has been built under Special Survey in accordance with [the] approved plans, and the materials and workmanship are good.

The Boiler is fitted on top of the oil fuel bunker in the Boiler space forward of Engine Room, having access from the top platform of the Engine Room.

The Boiler is fitted for burning oil fuel 10.36, flash point above 150°F., under [forced] draft, The Safety valves have been adjusted under steam to 150 lbs per [sq. in.]

Survey Fee ... ... £ 10 : 2 : *When applied for,* See Machy Report 19

Travelling Expenses (if any) £ See Machy Rpt *When received,* 19

A Watt

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 13 OCT 1936

Assigned See Machy. F. E. Report