

pt. 5a.

WASTE HEAT REPORT ON BOILERS

No. 95349

Received at London Office AUG 20 1937
NEWCASTLE-ON-TYNE

Date of writing Report 17/8/37 19 When handed in at Local Office 18/8/37 19 Port of

To, in Survey held at Newcastle on Tyne Date, First Survey 23 Dec 1936 Last Survey 17/8/37 19
Book. (Number of Visits) Gross 8298

on the Stead M/s BRITISH RESOLUTION Tons { Net 4936

ster Built at Newcastle By whom built Swan Hunter & W. Richardson Ltd Yard No. 1514 When built 1937

ines made at Sunderland By whom made Wm Duxford & Sons Ltd Engine No. 199 When made 1937

ilers made at Newcastle By whom made Swan, Hunter & Wigham Richardson Ltd Boiler No. 1514 When made 1937

iminal Horse Power $\frac{2595}{15} = 173$ Owners British Tanker Co Port belonging to LONDON

WASTE HEAT ^{8/}OR OIL FIRED

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Steel Coy of Scotland (Letter for Record 5.)

Total Heating Surface of Boilers 2595 sq. ft. Is forced draught fitted Yes Coal or Oil fired Waste heat Gross

No. and Description of Boilers One Single ended Horizontal Multitubular. Working Pressure 150 lbs/sq. in

tested by hydraulic pressure to 275 lbs. Date of test 30/4/37 No. of Certificate 713 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler oil fired. No. and Description of safety valves to each boiler Two of 2 3/4" Cockburn's Improved High lift Spring loaded

Area of each set of valves per boiler { per Rule 9.85 sq. ins. as fitted 11.84 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.

Smallest distance between boilers or uptakes and bunkers or woodwork 16" Is oil fuel carried in the bunker double bottom under boilers Yes

Smallest distance between shell of boiler and tank top plating 16" Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 13'-4 1/4" Length 11'-6" Shell plates: Material Steel Tensile strength 30/34 tons

Thickness 7/8" Are the shell plates welded or flanged No Description of riveting: circ. seams { end DR Lap inter. none

Long. seams T. Riv. Dbl butt straps Diameter of rivet holes in { circ. seams 1" long. seams 15/16" Pitch of rivets { 3.24" 6.625"

Percentage of strength of circ. end seams { plate 69.18 rivets 42.41 Percentage of strength of circ. intermediate seam { plate none rivets none

Percentage of strength of longitudinal joint { plate 85.84 rivets 85.55 combined 88-80 Working pressure of shell by Rules 151 lbs.

Thickness of butt straps { outer 21/32" inner 25/32" No. and Description of Furnaces in each Boiler Two at Wings, Deighton Corrugated. Plain tube at Centre back for access.

Material Steel Tensile strength 26/30 tons Smallest outside diameter 37 5/16"

Length of plain part { top 2'-4" c.c. bottom 2'-4" c.c. Thickness of plates { crown 13/32" bottom 7/8" c.c. bottom Description of longitudinal joint Furnaces Jow 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 1 1/32" Pitch of stays 18 x 18

How are stays secured Dbl nuts & washers. Working pressure by Rules 151.5 lbs.

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

Mean pitch of stay tubes in nests 9.375" Pitch across wide water spaces 13 1/2 x 7 3/8 Working pressure { front 159 lbs. back 156

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

at centre 7 7/8" x 1 1/4" Length as per Rule 30 21/32 Distance apart 8 3/4 (max at Centre) No. and pitch of stays

in each 2 @ 9 3/8" Working pressure by Rules 151 lbs. Combustion chamber plates: Material Steel

Tensile strength 26/30 tons Thickness: Sides 5/8" Back 3/4" 23/32 Top 5/8" Bottom 5/8"

Pitch of stays to ditto: Sides 9 1/2 x 9 3/8 Back 9 x 9 cr. c.c. Top 9 3/8 x 8 3/4 Are stays fitted with nuts or riveted over both ends. Remainder of back stays are riveted inside c.c. & nuts outside.

Working pressure by Rules 152 lbs. 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 3/4"

Pitch of stays at wide water space 13 1/2 x 9" Are stays fitted with nuts or riveted over Nuts

Working Pressure 172 lbs. Main stays: Material Steel Tensile strength 28/32 tons

Diameter { At body of stays Two top stays 2 3/4" others 2 5/8" No. of threads per inch 6 Area supported by each stay (18 x 18) - 4.57 sq. in

Working pressure by Rules 155 lbs. Screw stays: Material Steel Tensile strength 26/30 tons

Diameter { At turned off part 1 1/2 + 1 5/8" No. of threads per inch 9 Area supported by each stay (9 3/8 x 8 3/4) - 1.45 sq. in c.c. tops.

Working pressure by Rules 155 lb Are the stays drilled at the outer ends No Margin stays: Diameter ^{At turned off part} 1 5/8"
 No. of threads per inch 9 Area supported by each stay (1 1/2 x 9) = 1.73 sq Working pressure by Rules 152 lb
 Tubes: Material IRON External diameter ^{Plain} 2 1/2" Thickness ^{Stay} 10 1/4" No. of threads per inch 9
 Pitch of tubes 3 3/4" x 3 3/4" Working pressure by Rules 229 lb. min. at sides Manhole compensation: Size of opening
 shell plate 20" x 16" Section of compensating ring 8 1/4" x 7/8" x two No. of rivets and diameter of rivet holes 32 - 1 1/4"
 Outer row rivet pitch at ends 8 3/4" Depth of flange if manhole ^{RING} 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} _____
 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 None Manufacturers of ^{Tubes} _____
 Number of elements _____ Material of tubes _____ Internal diameter and thickness of tubes _____
 Material of headers _____ Tensile strength _____ Thickness _____ Can the superheater be shut off _____
 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 _____
 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. G. J. Sturdy Manufacture _____
 Dates of Survey ^{During progress of work in shops - - -} _____ Are the approved plans of boiler and superheater forwarded herewith 26/8/33
 while building ^{During erection on board vessel - - -} See Machinery Report (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 No. 4124
British Indurance " " 94275

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
 The Boiler has been built under Special Survey in accordance with the Society's Rules, and approved plans, and the materials & workmanship are good.
 The Boiler is fitted on top of the oil fuel bunker in the Boiler Space forward of the Engine Room, having access from the top platform of the Engine Room.
 The boiler is fitted for burning oil fuel F.P. above 150° F., under forced draft and also for using the waste exhaust gases from the main engine.
 The Safety Valves were adjusted under steam to 150 lbs. and the accumulation test was satisfactory.

Survey Fee ... £ See Machy Rpt When applied for, 19
 Travelling Expenses (if any) £ : : When received, 19

A. Watt & W. Nicholson
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI 27 AUG 1937

Assigned See F.E. machy rpt.

