

REPORT ON BOILERS.

No. 70085

Received at London Office 22 NOV 1945

Date of writing Report 10 When handed in at Local Office 29.10.1945 Port of Glasgow

No. in Reg. Book. Survey held at Glasgow Date, First Survey 10.5.1943 Last Survey 20th Oct. 1945

on the SS "EMPIRE CRUSOE" (Number of Visits 34) Gross 2958 Net 1672

Master Built at Troon By whom built Ailsa S.B. Co. Ltd Yard No. 448 When built 1945

Engines made at Troon By whom made AILSA S.B. Co. Ltd Engine No. 190 When made 1945

Boilers made at Glasgow By whom made David Rowan & Co. Ltd Boiler No. 8465 When made 1945

Nominal Horse Power Owners Ministry of War Transport Port belonging to Troon

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel The steel company of Scotland, Ltd. (Letter for Record 5 ✓)

Total Heating Surface of Boilers 3840 sq ft Is forced draught fitted yes ✓ Coal or Oil fired Coal ✓

No. and Description of Boilers Two S.E. boilers. Working Pressure 200 lbs/sq in

Tested by hydraulic pressure to 350 lbs/sq in Date of test 4.5.44 5.12.44 No. of Certificate 21762 21834 Can each boiler be worked separately yes ✓

Area of Firegrate in each Boiler 43 sq ft No. and Description of safety valves to each boiler Two @ 3 1/2" improved high lift ✓

Area of each set of valves per boiler { per Rule approved 11.10 as fitted 16.59 ✓ Pressure to which they are adjusted 200 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 well clear Is oil fuel carried in the double bottom under boilers no ✓

Smallest distance between shell of boiler and tank top plating 20" Is the bottom of the boiler insulated yes (no) see letter 13/12/45

Largest internal dia. of boilers 13'-6" Length 11'-6" Shell plates: Material S. ✓ Tensile strength 29/33 Tons ✓

Thickness 1 3/16" Are the shell plates welded or flanged no Description of riveting: circ. seams { end D.R. ✓ inner ✓

long. seams T.R.D.B.S. Diameter of rivet holes in { circ. seams B.E. 1 1/4" F.E. 1 3/8" ✓ long. seams 1 1/4" Pitch of rivets { B.E. 3.373" F.E. 3.184" ✓ 8 3/4" ✓

Percentage of strength of circ. end seams { plate B.E. 62.9 F.E. 62.7 rivets B.E. 48.8 F.E. 46.6 Percentage of strength of circ. intermediate seam { plate ✓ rivets ✓

Percentage of strength of longitudinal joint { plate 85.7 rivets 87.8 combined 89 Working pressure of shell by Rules ✓

Thickness of butt straps { outer 29" ✓ inner 1 1/2" ✓ No. and Description of Furnaces in each Boiler 3 Dighton ✓

Material S ✓ Tensile strength 26/30 Tons ✓ Smallest outside diameter 3'-2 7/16" ✓

Length of plain part { top ✓ bottom ✓ Thickness of plates { crown 17" ✓ bottom 3/32" ✓ Description of longitudinal joint welded. ✓

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

End plates in steam space: Material S. ✓ Tensile strength 26/30 Tons ✓ Thickness 1 5/32" ✓ Pitch of stays 18" x 17" ✓

How are stays secured D.N. Working pressure by Rules ✓

Tube plates: Material { front S. ✓ back S. ✓ Tensile strength { 26/30 Tons ✓ Thickness { 29" ✓ 32" ✓ 3/4" ✓

lean pitch of stay tubes in nests 9.58" ✓ Pitch across wide water spaces 14" Working pressure { front ✓ back ✓

Girders to combustion chamber tops: Material S. ✓ Tensile strength 28/32 Tons ✓ Depth and thickness of girder

at centre 2 @ 9" x 7/8" Length as per Rule 2'-10 19/32" ✓ Distance apart 9 1/4" No. and pitch of stays

each 3 @ 8 1/4" Working pressure by Rules ✓ Combustion chamber plates: Material S. ✓

Tensile strength 26/30 Tons Thickness: Sides 11/16" ✓ Back 2 1/32" ✓ Top 11/16" ✓ Bottom 11/16" ✓

Pitch of stays to ditto: Sides 9 1/4" x 8 1/4" Back 9" x 8" Top 9 1/4" x 8 1/4" Are stays fitted with nuts or riveted over Nuts ✓

Working pressure by Rules ✓ Front plate at bottom: Material S. ✓ Tensile strength 26/30 Tons ✓

Thickness 29" ✓ Lower back plate: Material S. ✓ Tensile strength 26/30 Tons ✓ Thickness 25" ✓ 32" ✓

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

Working Pressure ✓ Main stays: Material S. ✓ Tensile strength 28/32 Tons ✓

Diameter { At body of stay, or 2 3/4" x 3" ✓ No. of threads per inch 6 ✓ Area supported by each stay ✓

Working pressure by Rules ✓ Screw stays: Material S. ✓ Tensile strength 26/30 Tons ✓

Diameter { At turned off part, or 1 5/8" ✓ No. of threads per inch 9 ✓ Area supported by each stay ✓

Working pressure by Rules Are the stays drilled at the outer ends no Margin stays: Diameter ^{At turned off part.} or 1 1/4", 1 3/8", 2"
 No. of threads per inch 9 Area supported by each stay Working pressure by Rules
 Tubes: Material S External diameter ^{Plain} 3" Thickness ^{8 W.C.} 1/4", 5/16", 3/8" No. of threads per inch 9
 Pitch of tubes 4 3/16" x 4 3/8" Working pressure by Rules Manhole compensation: Size of opening in end 16" x 12" 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 _____
 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,
 For David Rowan & Co. Ltd. Manufacturer.
Arch. H. Guirson

Dates of Survey while building ^{During progress of work in shops - -} 1943 May 10, 21, Jun 22, Jul 20, Aug 30, Sep 10, Oct 11, 28, Nov 10, 1944 Feb 10, 24, Mar 10, 20, Apr 25
^{During erection on board vessel - - -} May 9, 25, Jun 16, Jul 3, 13, Sep 8, Oct 18, Nov 14 Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)
Mar 16, Apr 11, 13, 27, May 4, Oct 5, 19 20
 Total No. of visits 34

Is this Boiler a duplicate of a previous case yes If so, state Vessel's name and Report No. EMPIRE DIRK No 67844

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been constructed under Special Survey in accordance with the Society's Rules and Regulations approved plans and Ministry of War Transport Specification. The materials and workmanship are good. They have been satisfactorily installed in the vessel, the safety valves adjusted in due steam to the working pressure. The boilers have been tried under full working conditions and found satisfactory.

Survey Fee ... £ 25 : 6 : - } When applied for, 20 NOV 1945
 Spec. Travelling Expenses (if any) £ 6 : 6 : - } When received, 19

Gas Stevenson & J Crawford
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 20 NOV 1945

Assigned SEE ACCOMPANYING MACHINERY REPORT

