

# REPORT ON BOILERS.

No. 67470.

Received at London Office

19 AUG 1943

6 OCT 1943

Date of writing Report 14. 8. 43 When handed in at Local Office Port of Glasgow  
 No. in Surrey held at Dumbarton Date, First Survey 28. 7. 42 Last Survey 28. 7. 43  
 on the Steamer "EMPIRE HARLEQUIN" (Number of Ports 30) Tons {Gross 232.28 Net -  
 Built at Aberdeen By whom built Alexander Hall & Co. Ltd. Yard No. 693 When built 1943  
 Engines made at Aberdeen By whom made H. Hall & Co. Ltd. Engine No. 399 When made 1943  
 Boilers made at Dumbarton By whom made W. Denny & Bros. Ltd. Boiler No. 4099 (2) When made 1943  
 Nominal Horse Power Owners The Admiralty Port belonging to

## MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Steel Co of Scotland (Letter for Record 5)  
 Total Heating Surface of Boilers 2940 sq ft Is forced draught fitted No Coal or Oil fired Oil  
 No. and Description of Boilers 1 Multitubular Working Pressure 200  
 Tested by hydraulic pressure to 350 Date of test 28. 7. 43 No. of Certificate 21477 Can each boiler be worked separately  
 Area of Firegrate in each Boiler 1 No. and Description of safety valves to each boiler 2 - 2 1/2" S L S L  
 Area of each set of valves per boiler {per Rule 8.54 as fitted 9.82 Pressure to which they are adjusted Are they fitted with easing gear  
 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 Is oil fuel carried in the double bottom under boilers  
 Smallest distance between shell of boiler and tank top plating Is the bottom of the boiler insulated  
 Largest internal dia. of boilers 16' 0" Length 11' 7 1/32" Shell plates: Material S Tensile strength 29.33  
 Thickness 1 13/32" Are the shell plates welded or flanged No Description of riveting: circ. seams {end DR. inter. Ni  
 long. seams TRDBS Diameter of rivet holes in {circ. seams 17/16" 17/16" Pitch of rivets {4" 3.375" 9 1/16"  
 Percentage of strength of circ. end seams {plate 64, 61.1 rivets 45.8, 45.4 Percentage of strength of circ. intermediate seam {plate Ni rivets Ni  
 Percentage of strength of longitudinal joint {plate 85.16 rivets 88.3 combined 88  
 Thickness of butt straps {outer 1 1/16" inner 1 7/16" No. and Description of Furnaces in each Boiler 3. Dighton  
 Material S Tensile strength 26.30 Smallest outside diameter 3' 11 7/16"  
 Length of plain part {top Thickness of plates {crown 2 1/32" bottom Description of longitudinal joint laced  
 Dimensions of stiffening rings on furnace or c.c. bottom Ni  
 End plates in steam space: Material S Tensile strength 26.30 Thickness 1 1/32" Pitch of stays 19 1/2"  
 How are stays secured D.N.  
 Tube plates: Material {front S Tensile strength {26.30 Thickness {29/32" back S 26.30 29/32"  
 Mean pitch of stay tubes in nests 11.1" Pitch across wide water spaces 14 1/4"  
 Girders to combustion chamber tops: Material S Tensile strength 28.32 Depth and thickness of girder  
 at centre 8 7/8" x 1 3/4" Length as per Rule 2' 10 1/2" Distance apart 8 3/4" No. and pitch of stays  
 in each 3 - 8 1/4" Combustion chamber plates: Material S  
 Tensile strength 26.30 Thickness: Sides 2 1/32" Back 2 1/32" Top 2 1/32" Bottom 2 5/32"  
 Pitch of stays to ditto: Sides 8 1/4" x 9" Back 8 1/16" x 8 1/2" Top 8 1/4" x 8 3/4" Are stays fitted with nuts or riveted over Nuts  
 Front plate at bottom: Material S Tensile strength 26.30  
 Thickness 29/32" Lower back plate: Material S Tensile strength 26.30 Thickness 1 3/16"  
 Pitch of stays at wide water space 13 1/2" x 8 1/2" Are stays fitted with nuts or riveted over Nuts  
 Main stays: Material S Tensile strength 28.32  
 Diameter {At body of stay, 3 1/4" 3" No. of threads per inch 9  
 Over threads  
 Screw stays: Material S Tensile strength 26.30  
 Diameter {At turned off part, 1 5/8" No. of threads per inch 9  
 Over threads

Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part, 1 7/8" or Over threads

No. of threads per inch 9

Tubes: Material S External diameter { Plain 3 3/4" Stay 3 3/4" Thickness { 8 w.g. 5/16 3/8" No. of threads per inch 9

Pitch of tubes 4 1/2" x 4 3/8" Manhole compensation: Size of opening

shell plate 16" x 12" Section of compensating ring 3'1" x 2'9" x 1 1/2" No. of rivets and diameter of rivet holes 34 1 1/2"

Outer row rivet pitch at ends 10 1/16" Depth of flange if manhole flanged - Steam Dome: Material Ni

Tensile strength \_\_\_\_\_ Thickness of shell \_\_\_\_\_ Description of longitudinal joint \_\_\_\_\_

Diameter of rivet holes opp Pitch of rivets \_\_\_\_\_ Percentage of strength of joint { Plate \_\_\_\_\_ Rivets \_\_\_\_\_

Internal diameter \_\_\_\_\_ Thickness of crown \_\_\_\_\_ No. and diameter of stays \_\_\_\_\_

How connected to shell \_\_\_\_\_ Inner radius of crown \_\_\_\_\_

of rivets in outer row in dome connection to shell \_\_\_\_\_ Size of doubling plate under dome \_\_\_\_\_ Diameter of rivet holes and pitch \_\_\_\_\_

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 \_\_\_\_\_

Area of each safety valve \_\_\_\_\_ Are the safety valves fitted with casing gear \_\_\_\_\_

Pressure to which the safety valves are adjusted \_\_\_\_\_ Hydraulic test pressure \_\_\_\_\_

tubes \_\_\_\_\_ forgings and castings \_\_\_\_\_ and after assembly in place \_\_\_\_\_ Are drain cocks of 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 **WILLIAM DENNY & BROTHERS, LTD.** Manufacture  
 Engineering Dept.

Dates of Survey { During progress of work in shops - - - 1942 July 28 Sep 1. 8. 29 Oct 2. 14. 21. 27 Nov 5. 17. 20 Are the approved plans of boiler and superheater for Director herewith 2.7.43  
 while building { During erection on board vessel - - - Dec 3. 8 1943 Jan 5. 11. 26 Feb 9. 16 Mar 23 Apr 6. 20 May 7. 11. 20 Jun 1. 9. 22. 29 Jul 12. 28 (If not state date of approval)  
 Total No. of visits 30

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. Gle Report No 67469

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been built under special survey in accordance with the approved plans and the Society's Rules and requirements, the materials and workmanship are good.

Survey Fee £ 19 : 12 : - } When applied for, £ 10 : 19 : 43.  
 Sub. of Spec. ~ 25% £ 4 : 18 : - }  
 Travelling Expenses (if any) £ : : - } When received, 19

*Jas Cairns*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 17 AUG 1943

Assigned Deferred for completion

FRI 12 NOV 1943  
 See minute on order J.E. Rpt 21207  
 Lloyd's Register Foundation