

## REPORT ON BOILERS.

No. 52641.

Received at London Office

Date of writing Report 19 When handed in at Local Office 19 Port of HULL.

No. in Survey held at HULL. Date, First Survey 25. 3. 44 Last Survey 29. 11. 1944

on the STEAM TUG. [EMPIRE] [LINOR]. A/MS 826 (Number of Visits 25.) Gross 243.87 Tons Net NIL

built at HESSLE. By whom built Richard Durston & Son Ltd Yard No 461. When built 1944

Engines made at HULL By whom made Chas. D. Holmes Ltd Engine No. 1688 When made 4

Boilers made at HULL By whom made Chas. D. Holmes Ltd Boiler No. 1668 When made 4

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

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Steel Company of Scotland Ltd. (Letter for Record S. ✓)

Total Heating Surface of Boilers 2778 sq. ft. ✓ Is forced draught fitted Yes. ✓ Coal or Oil fired Coal. ✓

No. and Description of Boilers One S.B. ✓ Working Pressure 210 lb. / sq. in. ✓

Tested by hydraulic pressure to 365 lb. / sq. in. Date of test 25. 8. 44 No. of Certificate 4232. Can each boiler be worked separately —

Area of Firegrate in each Boiler 64 sq. ft. No. and Description of safety valves to each boiler 2 Spring loaded ✓

Area of each set of valves per boiler {per Rule 18.6 sq. in. 15.42  
as fitted 19.24 sq. in. ✓ Pressure to which they are adjusted 210 lb. / sq. in. 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 1'-4½". 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 No

Largest internal dia. of boilers 15'-9½". ✓ Length 11'-6". ✓ Shell plates: Material Steel ✓ Tensile strength 31-35 lb. / sq. in. ✓

Thickness 1¾". ✓ Are the shell plates welded or flanged No. ✓ Description of riveting: circ. seams {end 3⅞" inter. —  
long. seams T.R., D.B.S. ✓ Diameter of rivet holes in {circ. seams 1⅜" ✓  
long. seams 1⅜" ✓ Pitch of rivets 9⅛" ✓

Percentage of strength of circ. end seams {plate 63.7% ✓  
rivets 43-33% ✓ Percentage of strength of circ. intermediate seam {plate —  
rivets — ✓

Percentage of strength of longitudinal joint {plate 84.6% ✓  
rivets 85.5% ✓  
combined 86.3% ✓

Thickness of butt straps {outer 1⅞" ✓  
inner 1⅞" ✓ No. and Description of Furnaces in each Boiler 3. C.F. Deighra Section ✓

Material Steel ✓ Tensile strength 26-30 tons / sq. in. ✓ Smallest outside diameter 3'-10". ✓

Length of plain part {top —  
bottom — Thickness of plates {crown 1⅞" ✓  
bottom 1⅞" ✓ Description of longitudinal joint Weld ✓

Dimensions of stiffening rings on furnace or c.c. bottom NONE. ✓

End plates in steam space: Material Steel ✓ Tensile strength 26-30 tons / sq. in. ✓ Thickness 1⅜" ✓ Pitch of stays 18⅞" x 19½" ✓

How are stays secured Double nuts + washers. ✓

Tube plates: Material {front Steel ✓  
back Steel ✓ Tensile strength {26-30 tons / sq. in. ✓  
26-30 tons / sq. in. ✓ Thickness {15/16" ✓  
7/8" ✓

Mean pitch of stay tubes in nests 9⅞" ✓ Pitch across wide water spaces 13½" x 8½". ✓

Girders to combustion chamber tops: Material Steel ✓ Tensile strength 29-33 tons / sq. in. ✓ Depth and thickness of girder —

at centre 9¼" x 7/8" Double Length as per Rule 2'-8⅞". ✓ Distance apart 9½" No. and pitch of stays —

in each 3 @ 7½". ✓ Combustion chamber plates: Material Steel ✓

Tensile strength 26-30 tons / sq. in. ✓ Thickness: Sides 2⅞" ✓ Back 2⅞" ✓ Top 1⅞" ✓ Bottom 7/8" ✓

Pitch of stays to ditto: Sides 8¼" x 9¾" ✓ Back 8½" x 9½" ✓ Top 7½" x 9½" ✓ Are stays fitted with nuts or riveted over Nuts. ✓

Front plate at bottom: Material Steel ✓ Tensile strength 26-30 tons / sq. in. ✓

Thickness 15/16". ✓ Lower back plate: Material Steel ✓ Tensile strength 26-30 tons / sq. in. ✓ Thickness 7/8" ✓

Pitch of stays at wide water space 13¾" x 9¾". ✓ Are stays fitted with nuts or riveted over Nuts. ✓

Main stays: Material Steel ✓ Tensile strength 28/32 tons / sq. in. ✓

Diameter {At body of stay, —  
or Over threads 3¼" ✓ No. of threads per inch 8. ✓

Screw stays: Material Steel ✓ Tensile strength 26-30 tons / sq. in. ✓

Diameter {At turned off part, —  
or Over threads 1¾" ✓ No. of threads per inch 10. ✓



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Are the stays drilled at the outer ends No. ✓

Margin stays: Diameter { At turned off part, 2" - 2 1/8" ✓  
or  
Over threads

No. of threads per inch 10. ✓

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

Pitch of tubes 4 1/4" x 4 1/4" ✓

Manhole compensation: Size of opening in shell plate 12" (x 16") ✓ Section of compensating ring 12 3/16" x 1 3/8" ✓ No. of rivets and diameter of rivet holes 16 @ 1 1/32" ✓

Outer row rivet pitch at ends 9 1/8" ✓ Depth of flange if Bottom 3 3/8" ✓

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 8801 \_\_\_\_\_ Thickness of crown \_\_\_\_\_ No. and diameter of stays \_\_\_\_\_

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

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 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 \_\_\_\_\_

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 CHARLES D. HOLMES & CO., LTD.  
W.R. Evans Manufacturer.

1944. Mar 25-27-28. Apr 29. June 13-14-19-21. July 13. Aug. 14-25.

Dates of Survey { During progress of work in shops - - )  
while building { During erection on board vessel - - )

Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) \_\_\_\_\_

Total No. of visits 25.

Is this Boiler a duplicate of a previous case Yes. ✓ If so, state Vessel's name and Report No. S-109. EMPIRE CHARLES.

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

This Boiler has been constructed under Special Survey in accordance with the Rules and the Approved plans.

The Workmanship & Materials are good and, when subjected to an hydraulic test of 365 lbs/sq. in. was found satisfactory in every respect.

Boiler fitted on board at Hull, examined under steam, safety valves adjusted as overleaf, accumulation test held and boiler found satisfactory on completion of all tests.

Survey Fee ... £ : : When applied for, 19

Travelling Expenses (if any) £ : : When received, 19

W. Shields & J. Pile  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 12 JAN 1945

Assigned Su FE machy. rph.