

## REPORT ON BOILERS.

No. 52119.

Received at London Office

9 SEP 1943

Date of writing Report 11-8.

1943.

When handed in at Local Office 6 SEP 1943

19

Port of HULL.

No. in Survey held at HULL.

Date, First Survey 8-10-42.

Last Survey 17-8-1943.

Reg. Book.

on the STEAM TUG.

[EMPIRE MUSTANG]

(Number of Visits 37.)

Gross 242

Net Nil

Built at GAINSBOROUGH By whom built J.S. Watson (GAINSBOROUGH) Ltd

Yard No. 1534. When built 1943.

Engines made at HULL

By whom made Chas. D. Holmes Ltd

Engine No. 1686. When made 1943.

Boilers made at HULL

By whom made Chas. D. Holmes Ltd

Boiler No. 1631. When made 1943.

Nominal Horse Power 177.

Owners Ministry of War Transport.

Port belonging to

## MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Appleby Frodingham Steel Co. Ltd &amp; Colvilles

(Letter for Record 5.)

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 20-4-43. No. of Certificate 4188. 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. 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'-4 1/2". 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'-9 1/4". Length 11'-6". Shell plates: Material Steel Tensile strength 31-35 tons/sq. in.

Thickness 1 3/8". Are the shell plates welded or flanged No. Description of riveting: circ. seams {end D.R. Lap. inter. -

long. seams T.R. D.B.S. Diameter of rivet holes in {circ. seams 1 13/32" long. seams 1 13/32" Pitch of rivets 3 3/8" 9 1/8"

Percentage of strength of circ. end seams {plate 63.71% rivets 43-33% Percentage of strength of circ. intermediate seam {plate 84.6% rivets 85.5% combined 86-3%

Percentage of strength of longitudinal joint {plate 84.6% rivets 85.5% combined 86-3%

Thickness of butt straps {outer 1 1/16" inner 1 3/16". No. and Description of Furnaces in each Boiler 3. C. f. Deighton 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 1 1/16" bottom 1 1/16". 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 1 3/32". Pitch of stays 18 5/8" x 19 1/4".

How are stays secured Double nuts and washers.

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

Mean pitch of stay tubes in nests 9 1/8". Pitch across wide water spaces 13 1/2" x 8 1/2"

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

at centre 9 1/4" x 7 3/8" double Length as per Rule 2'-8 29/32". Distance apart 9 1/2". No. and pitch of stays

in each 3 @ 7 1/2". Combustion chamber plates: Material Steel

Tensile strength 26-30 tons/sq. in. Thickness: Sides 23/32" Back 23/32" Top 1/16" Bottom 7/8".

Pitch of stays to ditto: Sides 8 1/4" x 9 1/2" Back 8 1/2" x 9 1/2" Top 7 1/2" x 9 1/2" 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".

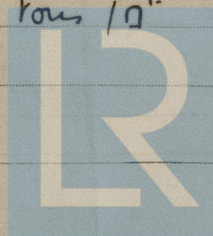
Pitch of stays at wide water space 13 3/4" x 9 3/8". Are stays fitted with nuts or riveted over Nuts.

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

Diameter {At body of stay, or Over threads 3 1/4" 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 1 3/4" 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" or 2 1/8" Over threads 2", 2 1/8"

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", 7/16" 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 3/32" Dia

Outer row rivet pitch at ends 9 1/8" Depth of flange if manhole flanged 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 Thickness of crown No. and diameter of stays Inner radius of crown

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 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 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 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.  
H.R. Evans Manufacturer.

Dates of Survey { During progress of work in shops - - 1942. Oct 8. 15-24. 29. Nov. 5. 30. Dec. 16. 1943. Jan. 6. 14. Feb. 12. 26. Mar. 14. 11. 26. 29. 30. 31. Apr. 2. 5. 8. 12. 15. 20. July 15-22. Are the approved plans of boiler and superheater forwarded herewith 8.8.40. (If not state date of approval.)

while building { During erection on board vessel - - - See machinery report. 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 BIRCH Hull Rpt. 5147R.

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

This Boiler has been constructed under special survey in accordance with the Rule and the approved plan

The Workmanship and Materials are good and, when subjected to an hydraulic test of 365 lbs 10: it was found satisfactory in every respect.

[Boiler installed in steam tug 'EMPIRE MUSTANG', examined under steam, safety valves adjusted so overlap, accumulation test held and found satisfactory after all tests. B.S. Shields]

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

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

P. R. Evans  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 17 SEP 1943

Assigned all minute on  
J.E. Rpt.