

REPORT ON BOILERS.

No. 51866.

Received at London Office.

19 JAN 1943

Date of writing Report

19

When handed in at Local Office

14/11

1943

Port of HULL

No. in Survey held at

HULL.

Date, First Survey

2. 6. 42.

Last Survey

24. 12. 19. 42.

Reg. Book

on the STEAM TUG.

[EMPIRE ACE.

(Number of Visits

37.

Gross 274

Tons

Net nil

Built at SELBY.

By whom built

Cochrane & Co. Ltd

Yard No. 1255. When built

1942

Engines made at HULL.

By whom made

Amos & Smith Ltd

Engine No. 714. When made

Boilers made at HULL.

By whom made

Amos & Smith Ltd

Boiler No. 714. When made

Nominal Horse Power 132.

Owners

Ministry of War Transport.

Port belonging to

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Appleby, Frodingham Steel Co. Ltd and Colvilles Ltd (Letter for Record 5)

Total Heating Surface of Boilers 2390 sq. ft.

Is forced draught fitted No.

Coal or Oil fired Oil Fuel

No. and Description of Boilers One S.B.

Working Pressure 200 lb./sq. in.

Tested by hydraulic pressure to 350 lb./sq. in. Date of test 20-11-42 No. of Certificate 4170. Can each boiler be worked separately —

Area of Firegrate in each Boiler — (or) No. and Description of safety valves to each boiler 2. Spring loaded

Area of each set of valves per boiler {per Rule 13-90" as fitted 14-140"} Pressure to which they are adjusted 200 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'-6".

Is oil fuel carried in the double bottom under boilers No.

Smallest distance between shell of boiler and tank top plating None.

Is the bottom of the boiler insulated Yes.

Largest internal dia. of boilers 15'-6 1/4". Length 11'-6".

Shell plates: Material Steel. Tensile strength 29-33 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 1/32" long. seams 1 1/32" Pitch of rivets 4 3/16" 9 3/8"

Percentage of strength of circ. end seams {plate 66-4% rivets 42-7%

Percentage of strength of circ. intermediate seam {plate — rivets —

Percentage of strength of longitudinal joint {plate 85-7% rivets 85-0%

Percentage of strength of longitudinal joint {combined 90-15%

Thickness of butt straps {outer 1 1/16" inner 1 3/16"

No. and Description of Furnaces in each Boiler 3. C. 1. Deighan & Co. Ltd

Material Steel. Tensile strength 26-30 tons/sq. in. Smallest outside diameter 3'-11 3/8"

Length of plain part {top — bottom — Thickness of plates {vertical 1 1/16" horizontal —

Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or a.c. bottom —

End plates in steam space: Material Steel. Tensile strength 26-30 tons/sq. in. Thickness 1 3/16". Pitch of stays 18 3/4" x 18 1/2"

How are stays secured Nuts inside & out.

Tube plates: Material {front Steel back Steel. Tensile strength {26-30 tons/sq. in. Thickness {1 1/16" 7/8"

Mean pitch of stay tubes in nests 9 1/2" x 9 1/2". Pitch across wide water spaces 14 1/4" x 9 1/2".

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

at centre 9 1/2". Length as per Rule 2'-11". Distance apart 9". No. and pitch of stays

in each 3 @ 8 3/4". Combustion chamber plates: Material Steel

Tensile strength 26-30 tons/sq. in. Thickness: Sides 3/4". Back 23/32". Top 23/32". Bottom 3/4".

Pitch of stays to ditto: Sides 9 1/2" x 8 3/4". Back 9 1/2" x 8 1/2". Top 9" x 8 3/4". Are stays fitted with nuts or riveted over Nuts.

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

Thickness 1 7/16". Lower back plate: Material Steel. Tensile strength 26-30 tons/sq. in. Thickness 7/8".

Pitch of stays at wide water space 14 1/4" x 8 1/2". 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 6.

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 9

Are the stays drilled at the outer ends No. Margin stays: Diameter { At turned off part, 1 7/8" or 2" Over threads 1 7/8" + 2"

No. of threads per inch 9.

Tubes: Material IRON. External diameter { Plain 3 1/2" Stay 3 1/2" Thickness { 8 W.G. 5/16" No. of threads per inch 9.

Pitch of tubes 4 3/4" Manhole compensation: Size of opening in shell plate 16" x 12" Section of compensating ring 1 3/8" x 15" No. of rivets and diameter of rivet holes 28 @ 1 1/32"

Outer row rivet pitch at ends 9 7/8" 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

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

Area of each safety valve Is a safety valve fitted to every part of the superheater which can be shut off from the boiler

Pressure to which the safety valves are adjusted Are the safety valves fitted with casing gear

tubes forgings and castings and after assembly in place

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, W. & A. SMITH LTD. Manufacturer.

Dates of Survey { During progress of work in shops - - - Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

while building { During erection on board vessel - - - Total No. of visits

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. EMPIRE PAT. HUL. R. 51723.

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

The Boiler has been constructed under Special Survey in accordance with the Rules and the approved plan.

The Workmanship and Materials are good and, when subjected to an hydraulic test of 350 lb./sq. in. it was found satisfactory in every respect.

Tests carried out, safety valves adjusted as above, and furnaces & combustion chambers examined and all found satisfactory.

See survey report attached.

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

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

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 26 JAN 1943

Assigned See HUL 26.5-1866