

REPORT ON BOILERS.

No. 52568.

Date of writing Report 23-8-1944, When handed in at Local Office

14 SEP 1944

Received at London Office

18 SEP 1944

Port of HULL.

No. in Survey held at HULL.

Date, First Survey 17. 6. 44

Last Survey 30. 8. 1944

on the STEAM TUG.

EMPIRE CHRISTOPHER

(Number of Visits 16)

MS. 822.

Gross 274.35

Tons Net Nil

Built at SELBY

By whom built

Cochrane & Sons Ltd

Yard No. 1285. When built 1944

Engines made at HULL.

By whom made

Amos Smith Ltd

Engine No. 755 When made

Boilers made at HULL.

By whom made

Amos Smith Ltd

Boiler No. 755. When made

Nominal Horse Power 132

Owners

Ministry of War Transport

Port belonging to

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Appley Frodingham Steel Co Ltd & Colville.

(Letter for Record S.

Total Heating Surface of Boilers

2390.0

Is forced draught fitted No.

Coal or Oil fired Oil

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

17/6/44

No. of Certificate

4228.

Can each boiler be worked separately

Area of Firegrate in each Boiler

(6 ft).

No. and Description of safety valves to each boiler

Two Spring loaded

Area of each set of valves per boiler

per Rule

13.9 sq in

as fitted

14.137 sq in

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

None

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.

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

4 3/16"

Percentage of strength of circ. end seams

plate

66.4 %

rivets

42.7 %

Percentage of strength of circ. intermediate seam

plate

85.7 %

rivets

85.0 %

Percentage of strength of longitudinal joint

plate

85.7 %

rivets

85.0 %

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.f. Deighva Section

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

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 3/16"

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

15/16"

Pitch of stays

18 3/4" x 18 1/2"

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" x 7 1/8" double

Length as per Rule

2'-11"

Distance apart

9"

No. and pitch of stays

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

15/16"

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, 3 1/4"

Over threads

No. of threads per inch

6.

Screw stays: Material

Steel

Tensile strength

26-30 tons/sq in

Diameter

At turned off part, 1 3/4"

Over threads

No. of threads per inch

9.

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Lloyd's Register

Foundation

W300-0104

EMPIRE CHRISTOPHER.

Are the stays drilled at the outer ends No. Margin stays: Diameter { At turned off part, 1 1/8" + 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 1/2".
 Outer row rivet pitch at ends 9 7/8 Depth of flange if Bottom 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 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.

For AMOS & SONS LTD.
 The foregoing is a correct description,
W. E. Brown Manufacturer.
 DIRECTOR

Dates of Survey { During progress of work in shops - - June 17-29. 1944 Are the approved plans of boiler and superheater forwarded herewith 3-7-41.
 while building { During erection on board vessel - - - See machinery report (If not state date of approval.)
 Total No. of visits 16.

Is this Boiler a duplicate of a previous case Yes. If so, state Vessel's name and Report No. EMPIRE PAT. HUL RPT. 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 Material are good and, when subjected to an hydraulic test of 350 lbs / sq. in. the boiler was found satisfactory in every respect.
 The above boiler examined under steam, safety valves adjusted as per leaf, accumulation test held and found satisfactory on completion of all tests.

Survey Fee ... £ : : When applied for, 19
 Travelling Expenses (if any) £ : : When received, 19

W. E. Brown
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

See machinery report