

REPORT ON BOILERS.

No. 51664

Received at London Office

10 JUL 1942

Date of writing Report 23/4-1942. When handed in at Local Office 8 JUL 1942. Port of HULL

No. in Reg. Book Survey held at HULL. Date, First Survey 5.12.41. Last Survey 19.5.1942.

On the S. Tug. **EMPIRE FAIRY.** (Number of Visits 35.) Gross 244 Tons Net 141.

Built at SELBY. By whom built Cochrane & Sons Ltd. Yard No. 1243. When built 1942

Engines made at HULL. By whom made Amos & Smith Ltd. Engine No. 705. When made "

Boilers made at HULL. By whom made Amos & Smith Ltd. Boiler No. 706. When made "

Nominal Horse Power 132. Owners Ministry of War Transport. Port belonging to ✓

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Applety Frodingham Steel Co. Ltd and Colville (Letter for Record S)

Total Heating Surface of Boilers 2390. ✓ Is forced draught fitted No. ✓ Coal or Oil fired OIL. ✓

No. and Description of Boilers One S.B. ✓ Working Pressure 200 lb/in² ✓

Tested by hydraulic pressure to 350. ✓ Date of test 4/4/42. No. of Certificate 4140. Can each boiler be worked separately ✓

Area of Firegrate in each Boiler 63-2 ft². 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 14.1370. Pressure to which they are adjusted 200 lb/in². 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/in². ✓

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 3/32". ✓ long. seams 1 3/32". ✓ Pitch of rivets { 4 3/16". ✓ 9 7/8". ✓

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%. ✓ combined 90.15%. ✓

Thickness of butt straps {outer 1 1/16". ✓ inner 1 3/16". ✓ No. and Description of Furnaces in each Boiler 3 cf. Leighton Section. ✓

Material Steel ✓ Tensile strength 26-30 tons/in². ✓ 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/in². 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/in². ✓ Thickness { 15/16". ✓ 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/in². 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/in². ✓ Thickness: Sides 3/4". ✓ Back 2 3/32". ✓ Top 2 3/32". ✓ 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/in².

Thickness 15/16". ✓ Lower back plate: Material Steel ✓ Tensile strength 26-30 tons/in². 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/in². ✓

Diameter {At body of stay, 3 1/4". ✓ or Over threads - No. of threads per inch 6 ✓

crew stays: Material Steel. Tensile strength 26-30 tons/in². ✓

Diameter {At turned off part, 1 3/4". ✓ or Over threads - No. of threads per inch 9. ✓



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

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" appd. No. of threads per inch 9. ✓

Pitch of tubes 4 3/4" Manhole compensation: Size of opening in shell plate 12" (x16") Section of compensating ring 1 3/8" x 15" No. of rivets and diameter of rivet holes 28 @ 1 3/32"

Outer row rivet pitch at ends 9 7/8" 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 _____ 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 _____ 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 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 Yes.

For **AMOS & SMITH LTD.**
The foregoing is a correct description,

A. A. Keeney Manufacturer

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

See machinery report.

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

Total No. of visits ✓

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

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 & material are good and when subjected to a hydraulic test of 350 lbs / sq it was found satisfactory in every respect.

Survey Fee £ : : } When applied for, 10
 Travelling Expenses (if any) £ : : } When received, 10

J. P. Keenan
Engineer Surveyor to Lloyd's Register of Shipping.

FRL 14 AUG 1942

Committee's Minute

Assigned

See Hull No. 51664



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