

9 JUN 1928

Rpt. 5a.

REPORT ON BOILERS.

No. 14370

Received at London Office

Date of writing Report 7th June, 1926 When handed in at Local Office 8th June, 1926 Port of AberdeenNo. in Reg. Book. Survey held at Aberdeen Date, First Survey 11th Jan., 1926 Last Survey 28th May, 1926on the STEEL S.S.K. "ARUM" (Number of Visits 17) Tons Gross 194
Net 72Master _____ Built at Aberdeen By whom built Hall, Russell & Co. Ltd No. 689 When built 1926
Engines made at Aberdeen By whom made Hall, Russell & Co. Ltd Engine No. 689 When made 1926
Boilers made at Aberdeen By whom made Hall, Russell & Co. Ltd Boiler No. 689 When made 1926
Nominal Horse Power _____ Owners Irwin & Johnson (South Africa) Ltd Port belonging to AberdeenMULTITUBULAR BOILERS—MAIN, ~~AUXILIARY~~, OR DONKEY.Manufacturers of Steel D. Colville & Son, Ltd., The Scottish Iron & Steel Co. Ltd., The Leeds Forge Co. Ltd. Letter for Record toTotal Heating Surface of Boilers 1429 sq. ft. Is forced draught fitted no Coal or Oil fired coalNo. and Description of Boilers One Single Ended Working Pressure 180 lbs./sq. in.Tested by hydraulic pressure to 320 lbs./sq. in. Date of test 22.4.26 No. of Certificate 1049 Can each boiler be worked separately yesArea of Firegrate in each Boiler 48 sq. ft. No. and Description of safety valves to each boiler Two spring loadedArea of each set of valves per boiler per Rule 9.15 as fitted 11.88 Pressure to which they are adjusted 185 lbs./sq. in. Are they fitted with easing gear yesIn case of donkey boilers, state whether steam from main boilers can enter the donkey boiler noSmallest distance between boilers or uptakes and bunkers or ~~woodwork~~ 7" Is oil fuel carried in the double bottom under boilers noSmallest distance between shell of boiler and tank top plating no D.B. below boiler Is the bottom of the boiler insulated noLargest internal dia. of boilers 12'-9" Length 10'-9" Shell plates: Material Steel Tensile strength 28/32 tons/sq. in.Thickness 1 1/16" Are the shell plates welded or flanged no Description of riveting: circ. seams end D.R. LAPlong. seams T.R.D.B.S. Diameter of rivet holes in circ. seams 1 1/8" Pitch of rivets 3 1/4"Percentage of strength of circ. end seams plate 65.4 rivets 47.2 Percentage of strength of circ. intermediate seam plate - rivets -Percentage of strength of longitudinal joint plate 85.9 rivets 89.7 combined 89.77 Working pressure of shell by Rules 183 lbs./sq. in.Thickness of butt straps outer 13" inner 1" No. and Description of Furnaces in each Boiler Three plainMaterial Steel Tensile strength 26/30 tons/sq. in. Smallest outside diameter 3'-4"Length of plain part top 81" bottom 81" Thickness of plates crown 3/4" bottom 3/4" Description of longitudinal joint weldDimensions of stiffening rings on furnace bottom 3 1/2" x 3" x 3/4" Working pressure of furnace by Rules 190 lbs./sq. in.End plates in steam space: Material Steel Tensile strength 26/30 tons/sq. in. Thickness 1 1/8" Pitch of stays 18" x 18"How are stays secured D. nuts Working pressure by Rules 181 lbs./sq. in.Tube plates: Material front Steel back Steel Tensile strength 26/30 tons/sq. in. Thickness 3/32"Mean pitch of stay tubes in nests 11.75" Pitch across wide water spaces 14 1/2" Working pressure front 230 lbs./sq. in. back 186 lbs./sq. in.Girders to combustion chamber tops: Material Steel Tensile strength 28/32 tons/sq. in. Depth and thickness of girderat centre 8 3/8" x 2 @ 7/8" Length as per Rule 32 17/32 Distance apart 9" No. and pitch of staysin each 3 @ 8" Working pressure by Rules 203 lbs./sq. in. Combustion chamber plates: Material SteelTensile strength 26/30 tons/sq. in. Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 5/8"Pitch of stays to ditto: Sides 8" x 8 3/4" Back 8" x 9" Top 8" x 9" Are stays fitted with nuts or riveted over nutsWorking pressure by Rules 181 lbs./sq. in. Front plate at bottom: Material Steel Tensile strength 26/30 tons/sq. in.Thickness 1" Lower back plate: Material Steel Tensile strength 26/30 tons/sq. in. Thickness 15/16"Pitch of stays at wide water space 14 1/4" x 9" Are stays fitted with nuts or riveted over nutsWorking Pressure 254 lbs./sq. in. Main stays: Material Steel Tensile strength 28/32 tons/sq. in.Diameter At body of stay, 3" No. of threads per inch 6 Area supported by each stay 324 sq. in.Working pressure by Rules 207 lbs./sq. in. Screw stays: Material Iron Tensile strength 21 1/2 tons/sq. in.Diameter At turned off part, 1 3/4" No. of threads per inch 9 Area supported by each stay 72 1/2 x 74 1/2 sq. in.

Working pressure by Rules $252 \times 245 \frac{1}{16}$ Are the stays drilled at the outer ends ☒ No Margin stays: Diameter { At turned off part, ☒ 2 or Over threads ☒ 2
No. of threads per inch 9 Area supported by each stay 100.125 Working pressure by Rules 246 lbs./sq.
Tubes; Material L.W.W.1. External diameter { Plain $3\frac{1}{2}$ Stay $3\frac{1}{2}$ Thickness { 8 W.G. 5/16 + 1/32 No. of threads per inch 9
Pitch of tubes $4\frac{3}{4} \times 4\frac{3}{4}$ + $4\frac{3}{4} \times 4\frac{5}{8}$ Working pressure by Rules 215 lbs./sq. Manhole compensation: Size of opening in
shell plate 16×12 Section of compensating ring $28\frac{1}{2}$ dia. $\times 1\frac{1}{16}$ No. of rivets and diameter of rivet holes 34 - $1\frac{1}{8}$ holes
Outer row rivet pitch at ends 8 Depth of flange if manhole flanged 20 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 Working pressure by Rules Thickness of crown No. and diameter of
stays Inner radius of crown Working pressure by Rules
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 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 Working pressure as per
Rules Pressure to which the safety valves are adjusted Hydraulic test pressure:
tubes, 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 23 inclusive for boilers been complied with ☒ Yes.

The foregoing is a correct description,

FOR HALL, RUSSELL & CO., LTD.

James J. Hunter DIRECTOR.

Dates of Survey { During progress of work in shops - - - 1926: JAN. 11-25 FEB. 26 MAR. 1-12-25 Are the approved plans of boiler and superheater forwarded herewith ☒ Yes.
while building { During erection on board vessel - - - 1926: APR. 8-15-19-22 APR. 28 MAY 4-7-10-11-24-28 (If not state date of approval.) Total No. of visits 17.

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 approved plan; the materials and workmanship are good. The boiler has been satisfactorily fitted on board the vessel, the safety valves adjusted under steam, boiler examined under working conditions and found satisfactory.
This boiler is a duplicate of the boiler N:688 fitted in the O.C.R. Herine. Abn. Rpt. N:1408.

Survey Fee ...

Travelling Expenses (if any) £

See Report on Machinery

When applied for, 192

When received, 192

A. B. Forster

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 11 JUN 1926

Assigned

See A. E. on Machy. attached



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