

REPORT ON BOILERS.

No. 85947

Received at London Office 12 JUL 1930

Date of writing Report 1930 When handed in at Local Office 11.7.1930 Port of NEWCASTLE-ON-TYNE

No. in Survey held at South Shields Date, First Survey 14 Jan Last Survey 2 July 1930

on the S.S. "HARPAGUS" (Number of Visits) Gross Tons Net

Master Built at South Shields By whom built J. Readhead Sons Ltd. Yard No. 502 When built 1930

Engines made at South Shields By whom made J. Readhead Sons Ltd. Engine No. 502 When made 1930

Boilers made at South Shields By whom made J. Readhead Sons Ltd. Boiler No. 502 When made 1930

Nominal Horse Power 436 Owners National S.S. Co. Ltd. Port belonging to London

MULTITUBULAR BOILERS ~~MAIN~~ AUXILIARY, ~~OR DONKEY~~

Manufacturers of Steel The Steel Company of Scotland Ltd. (Letter for Record "T")

Total Heating Surface of Boilers 1748.5 sq ft. Is forced draught fitted No Coal or Oil fired Coal

No. and Description of Boilers One Cylindrical Multitubular Working Pressure 200 lbs.

Tested by hydraulic pressure to 350 lbs. Date of test 7-5-30 No. of Certificate 459 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 53.3 sq ft No. and Description of safety valves to each boiler 2 Spring loaded Grants High Lift

Area of each set of valves per boiler (per Rule 6.77 as fitted 7.09) Pressure to which they are adjusted 200 lbs Are they fitted with casing 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 3'-6" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 2'-9" Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 13'-3 5/8" Length 11'-0" Shell plates: Material Steel Tensile strength 29-33 Tons

Thickness 1 3/16" 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 1/4" long. seams 1 1/4" Pitch of rivets 3 3/4" 8 3/4"

Percentage of strength of circ. end seams (plate 66.6 rivets 43.7) Percentage of strength of circ. intermediate seam (plate 85.71 rivets 87.8)

Percentage of strength of longitudinal joint (plate 85.71 rivets 87.8 combined 89.0) Working pressure of shell by Rules 203.8 lbs.

Thickness of butt straps (outer 1 5/16" inner 1 7/16") No. and Description of Furnaces in each Boiler 3 Corrugated (Deighton)

Material Steel Tensile strength 26-30 Tons Smallest outside diameter 3'-3"

Length of plain part (top bottom) Thickness of plates (crown 5/8" bottom 5/8") Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 234 lbs.

End plates in steam space: Material Steel Tensile strength 26-30 Tons Thickness 1 3/16" Pitch of stays 21" x 17 1/2"

How are stays secured Double Nuts + Loose Washers 10 1/2" dia. x 1" thk. Working pressure by Rules 204 lbs.

Tube plates: Material (front back) Steel Tensile strength 26-30 Tons Thickness (7/8" 3/4" 13/16" Doublet)

Mean pitch of stay tubes in nests 9 1/2" x 9 1/2" Pitch across wide water spaces 14" x 9 1/2" Working pressure (front 200 lbs. back 222 lbs.)

Girders to combustion chamber tops: Material Steel Tensile strength 29-33 Tons Depth and thickness of girder

at centre 7" x 7/8" x 2 Length as per Rule 2'-3 1/2" Distance apart 10" No. and pitch of stays

in each 2-9" Working pressure by Rules 207 lbs. Combustion chamber plates: Material Steel

Tensile strength 26-30 Tons Thickness: Sides 2 3/32" Back 2 3/32" Top 2 3/32" Bottom 7/8"

Pitch of stays to ditto: Sides 9" x 10" Back 9 1/2" x 9 1/2" Top 9" x 10" Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules Sides 200.5 lbs. Front plate at bottom: Material Steel Tensile strength 26-30 Tons

Thickness 7/8" Lower back plate: Material Steel Tensile strength 26-30 Tons Thickness 7/8"

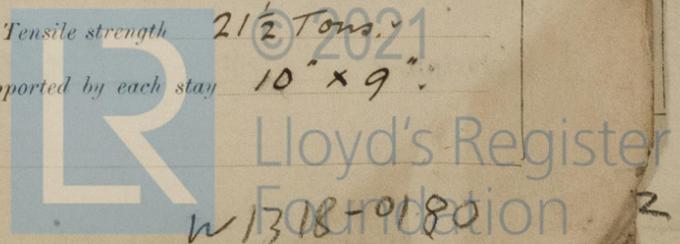
Pitch of stays at wide water space 14" x 9 1/2" Are stays fitted with nuts or riveted over Nuts

Working Pressure 218 lbs. Main stays: Material Steel Tensile strength 28-32 Tons

Diameter (At body of stay, or Over threads) 3" No. of threads per inch 6 Area supported by each stay 19" x 17 1/2"

Working pressure by Rules 201.5 lbs. Screw stays: Material Wrought Iron Tensile strength 21 1/2 Tons

Diameter (At turned off part, or Over threads) 1 7/8" No. of threads per inch 9 Area supported by each stay 10" x 9"



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Working pressure by Rules 236 lbs Are the stays drilled at the outer ends No Margin stays: Diameter ^{At turned off part.} 2 1/8" & 2 1/4"
 No. of threads per inch 9 Area supported by each stay 11 3/4" x 11 3/4" Working pressure by Rules 235 lbs
 Tubes: Material Lap Welded Iron External diameter ^{Plain} 3 1/2" Thickness 8 L.S.G. 1 No. of threads per inch 9
 Pitch of tubes 4 3/4" x 4 3/4" Working pressure by Rules Plain 215 lbs; Stay 214 lbs Manhole compensation: Size of opening in shell plate 12" x 16" Section of compensating ring 8" x 1 3/16" No. of rivets and diameter of rivet holes 28 - 1 1/4"
 Outer row rivet pitch at ends 8 3/4" Depth of flange if manhole flanged _____ Steam Dome: Material None fitted
 Tensile strength _____ Thickness of shell _____ Description of longitudinal joint _____
 Diameter of rivet holes _____ Pitch of rivets _____ Percentage of strength of joint ^{Plate} _____
 Internal diameter _____ Working pressure by Rules _____ Thickness of crown _____ No. and diameter of stays _____
 How connected to shell _____ Inner radius of crown _____ Working pressure by Rules _____
 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 fitted Manufacturers of ^{Tubes} _____
 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 _____ 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 22 inclusive for boilers been complied with yes. **FOR JOHN READHEAD & SONS, LTD.**
 The foregoing is a correct description,
J. H. Readhead 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 Yes.
 (If not state date) **CHARMAN & MANAGING DIRECTOR.**
 Total No. of visits _____

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
 This Boiler has been built under Special Survey. Materials & workmanship are good. Hydraulic tests satisfactory. They have been efficiently installed & fixed in the vessel, examined under steam, & their Safety Valves adjusted.

Survey Fee 1st Entry on Machinery When applied for, 192
 Travelling Expenses (if any) £ _____ When received, 192

E. H. Knowles
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI, 18 JUL 1930**

Assigned See other Rpt - same No.

