

# REPORT ON BOILERS.

Received at London Office 21 DEC 1945

Date of writing Report 18<sup>th</sup> Dec 1945 When handed in at Local Office 18<sup>th</sup> Dec 1945 Port of Belfast

No. in Survey held at Belfast Date, First Survey 6 Aug 1943 Last Survey 17<sup>th</sup> Dec 1945

On the M.V. "Empire Granada" (Number of Visits 19) Tons { Gross Net

Master Built at Glasgow By whom built Harland & Wolff Ltd Yard No. 1197 When built 1946

Engines made at Glasgow By whom made Harland & Wolff Ltd Engine No. 9507 When made A/MS/462

Boilers made at Belfast By whom made Messrs Harland & Wolff Ltd Boiler No. G.O. 8460 When made 1943.

Nominal Horse Power 490 Owners H.E. Moss & Co. Port belonging to ✓

## MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Colvilles Ltd. (Letter for Record S. ✓)

Total Heating Surface of Boilers 1918 sq ft. Is forced draught fitted yes ✓ Seal or Oil fired & Exh. gas. ✓

No. and Description of Boilers One single-ended multitubular Working Pressure 150 lb/sq in ✓

Tested by hydraulic pressure to 275 lb/sq in Date of test 21.12.43. No. of Certificate 1267 Can each boiler be worked separately yes.

Area of Firegrate in each Boiler 13.8 for ordinary valves No. and Description of safety valves to each boiler 2 1/4" Double Spring Improved High Lift.

Area of each set of valves per boiler per Rule 3.63 sq in (x 2) = 7.26 sq in each set Pressure to which they are adjusted 150 lb 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 will clear Is oil fuel carried in the double bottom under boilers No.

Smallest distance between shell of boiler and tank top plating will clear Is the bottom of the boiler insulated yes. (nats) ✓

Largest internal dia. of boilers 12'-6" Length 11'-0" Shell plates: Material Steel ✓ Tensile strength 29/33 tons

Thickness 7/8" Are the shell plates welded or flanged no. ✓ Description of riveting: circ. seams { end D.R. ✓ inter. ✓

long. seams T.R. D.B.S. Diameter of rivet holes in { circ. seams 1 3/32" ✓ long. seams 1 1/32" ✓ Pitch of rivets { 3.038" ✓ 6 1/16" ✓

Percentage of strength of circ. end seams { plate 64% rivets 56.1% Percentage of strength of circ. intermediate seam { plate ✓ rivets ✓

Percentage of strength of longitudinal joint { plate 84.6% rivets 106.7% combined 90.5% Working pressure of shell by Rules 154.6 lb/sq in

Thickness of butt straps { outer 1/16" ✓ inner 13/16" ✓ No. and Description of Furnaces in each Boiler Two Corrugated "Deights" Section ✓

Material Steel ✓ Tensile strength 26/30 tons ✓ Smallest outside diameter 42" ✓

Length of plain part { top ✓ bottom ✓ Thickness of plates { crown 1/2" ✓ bottom ✓ Description of longitudinal joint Fire weld. ✓

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules as approved. ✓

End plates in steam space: Material Steel ✓ Tensile strength 26/30 tons ✓ Thickness 15/16" ✓ Pitch of stays various

How are stays secured Nuts & washers inside & outside ✓ Working pressure by Rules as approved. ✓

Tube plates: Material { front Steel ✓ back Steel ✓ Tensile strength { 26/30 tons ✓ 26/30 tons ✓ Thickness { 7/8" ✓ 13/16" ✓

Mean pitch of stay tubes in nests 9.25" Pitch across wide water spaces 13 1/2" ✓ Working pressure { front as approved. ✓ back as approved. ✓

Girders to combustion chamber tops: Material Steel ✓ Tensile strength 28/32 tons ✓ Depth and thickness of girder

at centre Two @ 8 1/4" x 3/4" ✓ Length as per Rule 29.94" ✓ Distance apart 11" ✓ No. and pitch of stays

in each 3 @ 7 1/4" ✓ Working pressure by Rules as approved. ✓ Combustion chamber plates: Material Steel ✓

Tensile strength 26/30 tons ✓ Thickness: Sides 3/4" ✓ Back 3/4" ✓ Top 3/4" ✓ Bottom 3/4" ✓

Pitch of stays to ditto: Sides 9 3/4" x 8 1/4" ✓ Back 9 1/4" x 8" ✓ Top 11" x 7 1/4" ✓ Are stays fitted with nuts or riveted over remainder riveted.

Working pressure by Rules as approved. ✓ 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 15/16" ✓

Pitch of stays at wide water space 13" x 9 1/4" ✓ Are stays fitted with nuts or riveted over nutted ✓

Working Pressure as approved ✓ Main stays: Material Steel ✓ Tensile strength 28/32 tons ✓

Diameter { At body of stay, 2 1/2" ✓ or Over threads No. of threads per inch 6 ✓ Area supported by each stay ✓

Working pressure by Rules as approved. ✓ Screw stays: Material Steel ✓ Tensile strength 26/30 tons ✓

Diameter { At turned off part, 1 1/2", 1 5/8", 2" ✓ or Over threads No. of threads per inch 9 ✓ Area supported by each stay ✓



Working pressure by Rules *as approved* Are the stays drilled at the outer ends *no* Margin stays: Diameter *At turned off part, 15/8" ✓*  
 No. of threads per inch *9* Area supported by each stay *✓* Working pressure by Rules *as approved*.  
 Tubes: Material *Weldless Steel* External diameter *Plain 2 1/2" ✓* Thickness *10 L.S.G. ✓* No. of threads per inch *9 ✓*  
*Stay 2 1/2" ✓* Thickness *1/4", 5/16", 3/8" ✓*  
 Pitch of tubes *3 3/4" x 3 5/8" ✓* Working pressure by Rules *as approved ✓* Manhole compensation: Size of opening  
 shell plate *16 1/2" x 12 1/2" ✓* Section of compensating ring *2[(10" x 3/4") + (1" x 1")]* No. of rivets and diameter of rivet holes *28 @ 1 7/32" ✓*  
 Outer row rivet pitch at ends *9"* Depth of flange if manhole flanged *front end plate 3 3/8"* Steam Dome: Material  
 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  
 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 \_\_\_\_\_ 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  
 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 casing gear \_\_\_\_\_ Working pressure as per  
 Rules \_\_\_\_\_ Pressure to which the safety valves are adjusted \_\_\_\_\_ Hydraulic test pressure  
 tubes \_\_\_\_\_ forgings and castings \_\_\_\_\_ and after assembly in place \_\_\_\_\_ Are drain cocks  
 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,  
*J. W. Marshall* Manufacturer

Dates of Survey *1943*  
 During progress of work in shops - *Aug 6, Sept 14, 20, Oct 14, 7, 13, 18*  
 while building *Nov 2, 5, 11, 18, 22, Dec 6, 13, 16, 21, 18*  
 During erection on board vessel - *Nov 17*  
 Are the approved plans of boiler and superheater forwarded herewith *26.5.41*  
 (If not state date of approval.)  
 Total No. of visits \_\_\_\_\_

Is this Boiler a duplicate of a previous case *yes*. If so, state Vessel's name and Report No. *M.V. "NORRISIA" Bell Rpt No. 13026*

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) *This boiler has been constructed under Special Survey in accordance with the Society's Rules & approved plans. The materials & workmanship are good.*

*This boiler has been shipped to Glasgow where it is understood it will be fitted on board Messrs Harland & Wolff's Yarn No. 1197 G*  
*J. W. Marshall*

*This boiler has been satisfactorily secured in position on board the vessel and its safety valves afterwards adjusted under steam to 150 lbs per sq inch and found satisfactory. Safety valve compression washers Size P 1 5/32" S. 1 1/32"*  
*G. E. Murdoch*  
*Glasgow.*

Survey Fee ... £ 12 : 15 : 0 } When applied for, *19/12/45*  
 Travelling Expenses (if any) £ : ✓ : } When received, *19*

*J. W. Stibston*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute  
 Assigned *not for passing Committee // See*  
 PRI. 10 MAY 1946  
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