

REPORT ON BOILERS.

No. 18666

Received at London Office 19 JUL 1945

Date of writing Report 17/7 1945 When handed in at Local Office 18/7 1945 Port of WEST HARTLEPOOL

No. in Survey held at WEST HARTLEPOOL Date, First Survey 18th October 1944 Last Survey 7th July 1945

on the STEEL SCREW STEAMER "EMPIRE ALDGATE" (Number of Visits 49) Tons {Gross 3484.87 Net 2186.88

Master D. G. M. Built at WEST HARTLEPOOL By whom built W. H. GRAY & CO. LTD. Yard No. 1180 When built 1945.

Engines made at WEST HARTLEPOOL By whom made CENTRAL MARINE ENGINE WORKS Engine No. 1180 When made 1945.

Boilers made at WEST HARTLEPOOL By whom made CENTRAL MARINE ENGINE WORKS. Boiler No. 1180 When made 1945.

Indicating Horse Power 281 Owners MINISTRY OF WAR TRANSPORT Port belonging to WEST HARTLEPOOL.

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel Messrs. Colvilles, 2nd Glasgow. (Letter for Record S.)

Total Heating Surface of Boilers 2147 sq ft Is forced draught fitted Yes. Coal or Oil fired Coal.

No. and Description of Boilers 2 Single ended Multitubular Working Pressure 200 lbs sq in

Tested by hydraulic pressure to 350 lbs Date of test 13.4.45. No. of Certificate H.047 Can each boiler be worked separately Yes.

Area of Firegrate in each Boiler 46.2 sq ft No. and Description of safety valves to each boiler 2 Bourdon's High Lift.

Area of each set of valves per boiler {per Rule 6.05 sq in as fitted 7.95 sq in Pressure to which they are adjusted 200 lbs 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 -

Smallest distance between boilers or uptakes and bunkers or woodwork 3'-9" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 3'-4 1/4" Is the bottom of the boiler insulated Yes.

Largest internal dia. of boilers 14'-0" Length 11'-9" Shell plates: Material Steel Tensile strength 29-33 tons

Thickness 1 1/2" Are the shell plates welded or flanged No. Description of riveting: circ. seams {end D.R. LAP inter. -

Long. seams TR Double butt strap Diameter of rivet holes in {circ. seams 1 5/16" long. seams 1 3/16" Pitch of rivets {4" 9"

Percentage of strength of circ. end seams {plate 67.2 rivets 43.5 Percentage of strength of circ. intermediate seam {plate - rivets -

Percentage of strength of longitudinal joint {plate 85.42 rivets 90.6 Working pressure of shell by Rules - combined 88.95

Thickness of butt straps {outer 1 5/16" inner 1 1/16" No. and Description of Furnaces in each Boiler 3 Corrugated Dighton section

Material Steel Tensile strength 26-30 tons Smallest outside diameter 3'-5 3/8"

Length of plain part {top - bottom - Thickness of plates {crown 1 1/2" bottom 1 3/4" Description of longitudinal joint Welded.

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

End plates in steam space: Material Steel Tensile strength 26-30 tons Thickness 1 1/2" Pitch of stays 19 1/4" x 19 3/8"

How are stays secured Double nuts Working pressure by Rules -

End plates: Material {front Steel Tensile strength 26-30 tons Thickness 2 3/32" back Steel Tensile strength 26-30 tons Thickness 1 3/16"

Mean pitch of stay tubes in nests 12 3/8" x 8 1/2" Pitch across wide water spaces 14" Working pressure {front - back -

Orders to combustion chamber tops: Material Steel Tensile strength 28-32 tons Depth and thickness of girder

centre 7 1/2" x 1 3/4" 2-3/8" plates Length as per Rule 2'-7 1/2" Distance apart 9" No. and pitch of stays

each 2 @ 10" Working pressure by Rules - Combustion chamber plates: Material Steel

Tensile strength 26-30 tons Thickness: Sides 2 3/32" Back 1 1/16" Top 2 3/32" Bottom 2 3/32"

Pitch of stays to ditto: Sides 10 3/8" x 8 1/2" Back 9 3/8" x 8 3/4" Top 10" x 9" Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules - Front plate at bottom: Material Steel Tensile strength 26-30 tons

Thickness 2 3/32" Lower back plate: Material Steel Tensile strength 26-30 tons Thickness 7/8"

Pitch of stays at wide water space 14 3/8" x 9 3/8" Are stays fitted with nuts or riveted over Nuts

Working Pressure 200 lbs Main stays: Material Steel Tensile strength 28-32 tons

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

Working pressure by Rules - Screw stays: Material Steel Tensile strength 26-30 tons

Diameter {At turned off part, or Over threads 1 3/4" No. of threads per inch 9 Area supported by each stay -

Working pressure by Rules Are the stays drilled at the outer ends No Margin stays: Diameter ^{At turned off part, or} 2"
 No. of threads per inch 9 Area supported by each stay Working pressure by Rules
 Tubes: Material HRWS External diameter ^{Plain} 3" Thickness 3/16" No. of threads per inch 9
 Pitch of tubes 4 1/4" x 4 1/8" Working pressure by Rules Manhole compensation: Size of opening
 shell plate Clare Section of compensating ring No. of rivets and diameter of rivet holes
 Outer row rivet pitch at ends Depth of flange if manhole flanged 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}
 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 Superheaters 2nd Manufacturers of ^{Tubes}
 Number of elements 43 per 8ft Material of tubes SP Steel Internal diameter and thickness of tubes 17 1/4" x 2 1/2 1/4"
 Material of headers Tensile strength Thickness Can the superheater be shut off
 the boiler be worked separately No Is a safety valve fitted to every part of the superheater which can be shut off from the boiler Yes
 Area of each safety valve 1.767 sq in Are the safety valves fitted with easing gear Yes Working pressure as per
 Rules Pressure to which the safety valves are adjusted 210 lbs sq in Hydraulic test pressure
 tubes 1000 lbs sq in forgings and castings 600 lbs sq in and after assembly in place 600 lbs sq in Are drain cocks
 valves fitted to free the superheater from water where necessary Yes
 Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with Yes

The foregoing is a correct description,
 FOR THE CENTRAL MARINE ENGINE WORKS
 (M. Gray & Co. Ltd.) Manufacturer

Dates of Survey ^{During progress of work in shops - -} Are the approved plans of boiler and superheater forwarded
 while building ^{During erection on board vessel - - -} (If not state date of approval.) 16-9-41
 Total No. of visits

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. SS. EMPIRE CAICOS RPHO 1865

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) The boilers of this vessel
have been constructed under special survey and in accordance
with the approved plans and specification for a working pressure
of 200 lbs sq in
The materials and workmanship have been found good.
Upon completion the boilers were tested in the presence of
the undersigned by a hydraulic pressure of 350 lbs sq in; showed
no signs of weakness and were found tight and sound
in every respect at that pressure.

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

Arthur H. Osford
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute FRI. 24 AUG 1945

Assigned Su F.E. machy, rpt.

