Rpt. 5a.

REPORT ON BOILERS. No. 4447.

Received at London Office 10 FEB 1949

Date of writing Report 30/12/48. 192 When handed in at Local Office 192 Port of AUCKLAND, N.Z.

No. in Reg. Book. 76749. Survey held at Auckland. Date, First Survey 14/2/46. Last Survey 20/12/46. 192 (Number of Visits 26.)

on the S.S."TAIAROA" ex Minesweeper "WAIKATO". Tons Gross 252. Net 88.

Master --- Built at AUCKLAND, N.Z. By whom built Mason Bros. Eng.Co. Yard No. --- When built 1943.

Engines made at HUTT, N.Z. By whom made N.Z.Railway Workshops. Engine No. --- When made 1943.

Boilers made at DUKINFIELD, ENGLAND. By whom made Daniel Adamson & Co.Ltd. Boiler No. --- When made 1943.

Indicated- ~~Nominal~~ Horse Power 480. Owners NATIONAL MORTGAGE & AGENCY CO.LD. Port belonging to DUNEDIN,N.Z.

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

Manufacturers of Steel WAR MINISTRY SUPPLY. BULK PURCHASE. (Letter for Record ---)

Total Heating Surface of Boilers 1600 Is forced draught fitted No. Coal or Oil fired Oil.

No. and Description of Boilers 1.(One) 3.Furnace. Scotch Marine. **Working Pressure** 180.

Tested by hydraulic pressure to 320. Date of test 21/9/43. No. of Certificate Can each boiler be worked separately ---

Area of Firegrate in each Boiler 50 No. and Description of safety valves to each boiler 2. X 2¾"-Marine Type.

Area of each set of valves per boiler {per Rule ---, as fitted 11'86.Sq.In.} Pressure to which they are adjusted 180lb. 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 ~~/-Oil Fuel-~~ and bunkers ~~/-Oil Fuel-~~ 4' - 3". Is oil fuel carried in the double bottom under boilers No.

Smallest distance between shell of boiler and tank top plating Open Floors. Is the bottom of the boiler insulated Yes.

Largest internal dia. of boilers 13-6. Length 10-6. **Shell plates:** Material Steel Tensile strength 29/33.Tons.

Thickness 1⅛". Are the shell plates welded or flanged No. Description of riveting: circ. seams {end dbl.riveted lap., inter. does not apply.}

long. seams treble riveted /-Double butt. Straps. Diameter of rivet holes in {circ. seams 1 3/16", long. seams " "} Pitch of rivets {3⅜". 3.324", 8"}

Percentage of strength of circ. end seams {plate 64'4%., rivets 43'5%.} Percentage of strength of circ. intermediate seam {plate ---, rivets --None.}

Percentage of strength of longitudinal joint {plate 85%., rivets 85%., combined 87%.} Working pressure of shell by Rules 181'8Lb.Sq.In.

Thickness of butt straps {outer ⅞", inner 1"} **No. and Description of Furnaces in each Boiler** 3. plain.

Material Steel. Tensile strength Smallest outside diameter 3'-4½".

Length of plain part {top 6'-5¾", bottom 6'-0¼"} Thickness of plates {crown 25/32", bottom " "} Description of longitudinal joint welded.

Dimensions of stiffening rings on furnace or c.c. bottom does not apply. Working pressure of furnace by Rules 202lb.Sq.In.

End plates in steam space: Material Steel. Tensile strength 26/30.Tons. Thickness 1 5/32" Pitch of stays 19" max. X19.5

How are stays secured nuts inside & out. Working pressure by Rules 186'6lb.Sq.In.

Tube plates: Material {front Steel., back "} Tensile strength {26/30.Tons., 26/30.Tons.} Thickness {⅞"., ¾".}

Mean pitch of stay tubes in nests 11¾" Pitch across wide water spaces 14½". Working pressure {front 264lb.Sq.In., back 252.lb." ".}

Girders to combustion chamber tops: Material Steel. Tensile strength 28/32.Tons. Depth and thickness of girder at centre 8" X 13/16" X2 Length as per Rule 2'-6½". Distance apart 10" No. and pitch of stays in each 2 at 9¾". Working pressure by Rules 195'5.lb.Sq.In. **Combustion chamber plates:** Material Steel.

Tensile strength 26/30.Tons. Thickness: Sides 21/32. Back 11/16. Top 23/32. Bottom 13/16.

Pitch of stays to ditto: Sides 9¾" X 8". Back 10" X 8". Top 10" X 9¾". Are stays fitted with nuts or riveted over Nutted.

Working pressure by Rules 186lb.Sq.In. **Front plate at bottom:** Material Steel. Tensile strength 28/32.Tons. (26/30) Thickness ⅞". **Lower back plate:** Material Steel. Tensile strength 28/32.Tons. (26/30) Thickness 13/16".

Pitch of stays at wide water space 15" X 8". Are stays fitted with nuts or riveted over Nutted.

Working Pressure 186lb.Sq.In. **Main stays:** Material Steel. Tensile strength 28/32 tons sq.in.

Diameter {At body of stay, 2⅞", Over threads "} No. of threads per inch 6 Area supported by each stay 19X17½ = Sq. ins. 333'2.

Working pressure by Rules 183'6. **Screw stays:** in chamber backs Material Steel. Tensile strength 26/30.Tons.

Diameter {At turned off part, does not apply., Over threads 1¾, 1⅞ & 2".} No. of threads per inch 9. Area supported by each stay 8 X 10 = Sq. ins. 80.

End 11/3/49

Working pressure by Rules 226lb.Sq.In. *Are the stays drilled at the outer ends* No. ✓ *Margin stays: Diameter* { *At turned off part,* --- ✓ / *or Over threads* 1-7/8" & 2".

No. of threads per inch 9. ✓ *Area supported by each stay* 10"X8"= 80Sq.In. *Working pressure by Rules* 270 & 307.1b.Sq.In.

Tubes: *Material* Lapwelded W.I. *External diameter* { *Plain* 3-1/4". ✓ / *Stay* 3-1/4". } *Thickness* { 9.Gauge. ✓ / 5/16" & 3/8". } *No. of threads per inch* ✓ 9.

Pitch of tubes 4-1/2" X 4-1/2". ✓ *Working pressure by Rules* 180lb.Sq.In. **Manhole compensation:** *Size of opening in shell plate* 16" X 12". ✓ *Section of compensating ring* 8" X ✓ 1-1/8". *No. of rivets and diameter of rivet holes* 28. ✓ X 1-3/16".

Outer row rivet pitch at ends 8". ✓ *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* / *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 --- *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,

Manufacturer.

Dates of Survey while building { *During progress of work in shops* - - / *During erection on board vessel* - - - } Boiler made in U.K. --- *Are the approved plans of boiler and superheater forwarded herewith* --- (If not state date of approval.) *Total No. of visits* --- ---

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GENERAL REMARKS *(State quality of workmanship, opinions as to class, &c.)* This Boiler is one of a series made by D.Adamson & Co.Ltd. of Dukinfield,England,to the Order of the Admiralty for export to New Zealand to be fitted in Minesweeper Trawlers being built by the N.Z.Government for War Purposes.

Boiler made - 1943. Marked - MD- HYD.TEST. 320lb. W.P.180lb. Dated 21/9/43. Initials.J.Y.A.

This Boiler was examined by me internally & externally and seen in a good New Condition,all Steam Pipes,Boiler Feed Pipes together with the Safety Valves,all Mountings & Fastenings seen fitted also in New Condition,Boiler Tested under Steam and seen tight,Safety Valves set to 180lb.working pressure. The Oil Fuel Burning Installation and Fire Extinguishing Appliances,Valves,Pipes,Fittings & Controls also satisfactorily tested and in good New Condition and fitted to Rule Requirements.

The Materials & Workmanship are of good quality throughout,the Lagging sufficient and well applied and secured,and I Recommend this Boiler as part Machinery for a Class Vessel.

Not yet Charged;
Survey Fee ... ... £ : : } When applied for, 192
Chargeable with Certificate.
Travelling Expenses (if any) £ : : } When received, 192

Richard Lewis.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI, 18 MAR 1949

Assigned See minute on fe ref