

REPORT ON BOILERS.

No. 17981

Received at London Office 21 NOV 1939

Date of writing Report 20-11-1939 When handed in at Local Office 20-11-1939 Port of WEST HARTLEPOOL

No. in Reg. Book. Survey held at HARTLEPOOL + S. BANK Date, First Survey 4-9-39 Last Survey 20-11-1939

40321 on the Steel S. "NORMAN PRINCE" (Number of Visits 23) Tons {Gross 1913.27 Net 919.06

Master Built at South Bank By whom built Smith's Dock & Co. Yard No. 1066 When built 1940

Engines made at South Bank By whom made Smith's Dock & Co. Ltd Engine No. 528 When made 1940

Boilers made at Hartlepool By whom made Richardson, Warrington & Co. Boiler No. D528 When made 1939.

Nominal Horse Power 397. Owners Prince Line Ltd Port belonging to LONDON

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel The Steel Company of Scotland (Letter for Record S. ✓)

Total Heating Surface of Boilers 5968 sq ft Is forced draught fitted Yes Coal or Oil fired Coal.

No. and Description of Boilers 2 Cylindrical Multitubular Boilers Working Pressure 220 lbs

Tested by hydraulic pressure to 380 lbs Date of test 31-10-39 No. of Certificate 3905 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 62½ sq ft No. and Description of safety valves to each boiler 2 Double Spring Cockburn Macmillan

Area of each set of valves per boiler {per Rule 9.560 as fitted 11.8790 Pressure to which they are adjusted 220 lbs 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 and bunkers or woodwork 9" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 17" Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 16'6" Length 11'9" Shell plates: Material Steel Tensile strength 29/33 tons

Thickness 1½" Are the shell plates welded or flanged No Description of riveting: circ. seams {end Double riveted lap. inter. None.

long. seams Double riveted D.B. Diameter of rivet holes in {circ. seams 1½" long. seams 1½" Pitch of rivets {4" 11"

Percentage of strength of circ. end seams {plate 62.5% rivets 44% Percentage of strength of circ. intermediate seam {plate None rivets

Percentage of strength of longitudinal joint {plate 85.22% rivets 87.8% combined 87.9% Working pressure of shell by Rules 222 lbs

Thickness of butt straps {outer 1½" inner 1½" No. and Description of Furnaces in each Boiler 3 Deighton section

Material Steel Tensile strength 26/30 tons Smallest outside diameter 3'10½"

Length of plain part {top Thickness of plates {crown 23" bottom 23" Description of longitudinal joint Welded.

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 226 lbs

End plates in steam space: Material Steel Tensile strength 26/30 tons Thickness 1½" Pitch of stays 23" x 18½"

How are stays secured Double Nuts Working pressure by Rules 224 lbs

Tube plates: Material {front Steel Tensile strength 26/30 tons Thickness {3½" 13" back Steel Tensile strength 26/30 tons

Mean pitch of stay tubes in nests 10½" Pitch across wide water spaces 14½" Working pressure {front 224 lbs back 226 lbs

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

at centre 9¾" 2-¾" plates Length as per Rule 2'11½" Distance apart 9" No. and pitch of stays

in each 3 @ 8½" pitch Working pressure by Rules 230 lbs Combustion chamber plates: Material Steel

Tensile strength 26/30 tons Thickness: Sides 1½" Back 1½" Top 2½" Bottom 1"

Pitch of stays to ditto: Sides 8½" x 8½" Back 8½" x 8½" Top 9" x 8½" Are stays fitted with nuts or riveted over Nuts.

Working pressure by Rules 222 lbs Front plate at bottom: Material Steel Tensile strength 26/30 tons

Thickness 3½" Lower back plate: Material Steel Tensile strength 26/30 tons Thickness 3½"

Pitch of stays at wide water space 15" x 8½" Are stays fitted with nuts or riveted over Nuts.

Working Pressure 256 lbs Main stays: Material Steel Tensile strength 28/32 tons

Diameter {At body of stay 3½" No. of threads per inch 6 Area supported by each stay 422.625

Working pressure by Rules 222 lbs Screw stays: Material Steel Tensile strength 26/30 tons

Diameter {At turned off part 1½" No. of threads per inch 9 Area supported by each stay 76.5



Working pressure by Rules 237 ^{lb} Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part, Over threads 1 1/8" Working pressure by Rules 220 ^{lb} ^{sq}
 No. of threads per inch 9 Area supported by each stay 102.8 ^{sq}
 Tubes: Material Iron External diameter { Plain 3 1/4" Working pressure by Rules 230 ^{lb} ^{sq}
 { Stay 3 1/4" Thickness { 8 1/16" No. of threads per inch 9
 Pitch of tubes 4 5/8" x 4 1/2" Working pressure by Rules 230 ^{lb} ^{sq} Manhole compensation: Size of opening in
 shell plate 16" x 12" Section of compensating ring 2'-9" x 2'-5" x 1 1/4" No. of rivets and diameter of rivet holes 28-1 5/8" rivets
 Outer row rivet pitch at ends 11" Depth of flange if manhole flanged — 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 Smoke tube Manufacturers of { Tubes The Superheater Co. Ltd.
 { Steel forgings No.
 { Steel castings —
 Number of elements 57 Material of tubes S.P. Steel Internal diameter and thickness of tubes 17 1/4" x 3 1/4"
 Material of headers mild steel Tensile strength See Ind. Rpt. Thickness 1" Can the superheater be shut off and
 the boiler be worked separately Yes 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 1.76 ^{sq} Are the safety valves fitted with easing gear Yes Working pressure as per
 Rules Pressure to which the safety valves are adjusted 220 ^{lb} ^{sq} Hydraulic test pressure
 tubes 1000 ^{lb} ^{sq} forgings and castings 660 ^{lb} ^{sq} and after assembly in place 660 ^{lb} ^{sq} Are drain cocks
 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.

Dates of Survey { During progress of work in shops - 1939 Sept. 14-17-18-25-26 Oct. 24-25-27-28 Nov. 7-15-17-20 Are the approved plans of boiler and superheater forwarded herewith No.
 while building { During erection on board vessel - - - (If not state date of approval.) 8-6-39.
 Total No. of visits 23.

Is this Boiler a duplicate of a previous case No. If so, state Vessel's name and Report No.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These boilers have been constructed under Special Survey and in accordance with the approved plan for a working pressure of 220 ^{lb} ^{sq} per square inch. The materials and workmanship have been found good.

Upon completion the boilers were tested, in the presence of the undersigned, to 380 ^{lb} ^{sq} per square inch hydraulic pressure and found sound and tight in every respect at that pressure.

These boilers are intended for Smiths Dock & Co. Southbank, Middlesbrough, their Yard No. 1066. The boilers securely fitted on board and found in order.

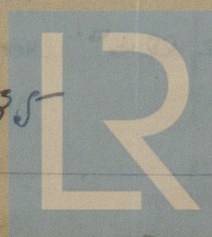
Survey Fee ... £ 32 : 7 : 0 } When applied for, 20-11-1939
 Travelling Expenses (if any) £ : : } When received, 13-12-1939 £

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

Committee's Minute FRI. 17 MAY 1940

Assigned

See Ind. Rpt. No. 16835



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