

REPORT ON BOILERS.

No. 89776

7 FEB 1933

Received at London Office

Writing Report

19

When handed in at Local Office

6 Feb 1933 Port of Newcastle

Survey held at

Newcastle

Date, First Survey

8 June 1932

Last Survey

6 Feb 1933

on the

Steel Locomotive "CHANG KIANG"

(Number of Visits)

Gross
Net

Built at

Newcastle

By whom built

Swan Hunter & Wigham
Richardson & Co.

Engine No.

1422

When built

1933

made at

Newcastle

By whom made

Swan Hunter & Wigham
Richardson & Co.

Engine No.

1422

When made

1933

made at

ditto

By whom made

ditto

Boiler No.

1422

When made

Horse Power

246

Owners

Ministry of Railways of the
Republic of China

Port belonging to

TITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel The Steel Co of Scotland, Thos Piggott & Co (furnaces) (Letter for Record S)

Heating Surface of Boilers 4480 sq ft. Is forced draught fitted Yes. Coal or Oil fired Coal.

Description of Boilers Two Single ended, cylindrical (2 S.B.) Working Pressure 180 lbs/sq in

by hydraulic pressure to 320 lbs/sq in Date of test 9.9.32 No. of Certificate 586 Can each boiler be worked separately Yes.

Area of Firegrate in each Boiler 59 sq ft. No. and Description of safety valves to each boiler Two - Cockburns Improved High Lift 2 1/4 dia

of each set of valves per boiler per Rule 7.180 Pressure to which they are adjusted 180 lbs/sq in Are they fitted with easing gear Yes.

of donkey boilers, state whether steam from main boilers can enter the donkey boiler No. donkey boiler

Least distance between boilers or uptakes and bunkers or woodwork 2'-6" Is oil fuel carried in the double bottom under boilers No.

Least distance between shell of boiler and tank top plating Open floors. Is the bottom of the boiler insulated No.

Least internal dia. of boilers 14'-3 3/4" (171.75") Length 11'-6" Shell plates: Material Steel Tensile strength 30-34 tons/sq in

Thickness 36/32 Are the shell plates welded or flanged No. Description of riveting: circ. seams end D.R. lap.

seams T.R. Double butt Straps. Diameter of rivet holes in circ. seams 1.3125" Pitch of rivets 4.379"

long. seams 1.1875" Pitch of rivets 8.3125"

Percentage of strength of circ. end seams plate 70.0 rivets 42.0 Percentage of strength of circ. intermediate seam plate rivets

Percentage of strength of longitudinal joint plate 85.7 rivets 85.1 combined 88.4 Working pressure of shell by Rules 183 lbs/sq in

Thickness of butt straps outer 27/32 inner 31/32 No. and Description of Furnaces in each Boiler Three Doughtons Corrugated.

Material Steel Tensile strength 26-30 tons/sq in Smallest outside diameter 42.125"

Thickness of plain part top 17/32 bottom Thickness of plates crown bottom Description of longitudinal joint Weld.

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 182 lbs/sq in

plates in steam space: Material Steel Tensile strength 26-30 tons/sq in Thickness 38/32 Pitch of stays 19.5" x 18.5"

Are stays secured Nuts inside and out. Working pressure by Rules 181 lbs/sq in

plates: Material front Steel back Steel Tensile strength 26-30 tons/sq in Thickness 31/32 24/32

Pitch of stay tubes in nests 9.375" Pitch across wide water spaces 13.5" x 7.5" Working pressure front 196 lbs/sq in back 228 lbs/sq in

plates to combustion chamber tops: Material Steel Tensile strength 28-32 tons/sq in Depth and thickness of girder

centre 9.125" x 20/32 x 2" Length as per Rule 32.6" Distance apart 9.125" No. and pitch of stays

each Two - 10" Working pressure by Rules 184 lbs/sq in Combustion chamber plates: Material Steel

Minimum strength 26-30 tons/sq in Thickness: Sides 22/32 Back 21/32 Top 22/32 Bottom 22/32

No. of stays to ditto: Sides 10" x 8.25" Back 9.125" x 9.125" Top 10" x 9.125" Are stays fitted with nuts or riveted over Nuts.

Working pressure by Rules 180 lbs/sq in Front plate at bottom: Material Steel Tensile strength 26-30 tons/sq in

Thickness 31/32 Lower back plate: Material Steel Tensile strength 26-30 tons/sq in Thickness 29/32

No. of stays at wide water space 14.5625" x 9.125" Are stays fitted with nuts or riveted over Nuts.

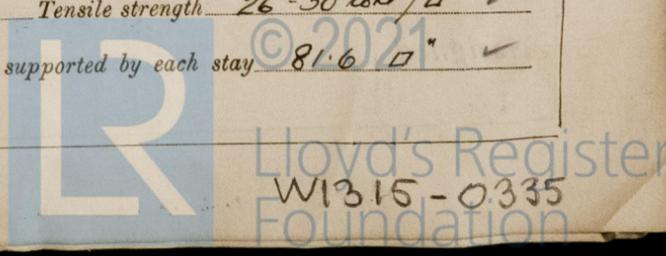
Working Pressure 228 lbs/sq in Main stays: Material Steel Tensile strength 28-32 tons/sq in

At body of stay, No. of threads per inch 6 Area supported by each stay 369 sq in

Over threads 3" Working pressure by Rules 181 lbs/sq in Screw stays: Material Steel Tensile strength 26-30 tons/sq in

At turned off part, No. of threads per inch 9 Area supported by each stay 81.6 sq in

Over threads 1 5/8"



Working pressure by Rules 186 1/2 lb Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 1 3/4 or Over threads 1 3/4 }
 No. of threads per inch 9 Area supported by each stay 100.6 sq Working pressure by Rules 182 1/2 lb
 Tubes: Material lap welded iron External diameter { Plain 2 1/2 Stay 2 1/2 } Thickness { 9 W.G. 1/4 x 5/16 } No. of threads per inch 9
 Pitch of tubes 3.75 Working pressure by Rules 200 lb Manhole compensation: Size of opening in shell plate 16 (x 1 1/2) Section of compensating ring 10 1/16 x 1 1/8 No. of rivets and diameter of rivet holes 15 1 1/16
 Outer row rivet pitch at ends 9.75 Depth of flange if manhole flanged Top 2.75; Bolts 3.4375 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 _____
 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 face 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, G. J. Duncanson Manufacturer

Dates of Survey { During progress of work in shops - - - } See Machinery Report Are the approved plans of boiler and superheater forwarded herewith Yes (If not state date of approval.)
 while building { During erection on board vessel - - - } Total No. of visits _____

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 & in accordance with the approved plans. The materials & workmanship are good, and when tested under hydraulic pressure the boilers were found tight & satisfactory in every respect. They have been satisfactorily fitted on board; see Report on Machinery—

Survey Fee £ : : When applied for, 19
 Travelling Expenses (if any) £ 2 : : When received, 19
G. J. Duncanson
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute **FRI. 10 FEB 1933**
 Assigned See other Rpt
Nwc. 89776



Rpt. 13
 RI
 Date of survey
 No. in Reg. Bo 9/2/5
 Built at
 Owners
 Electric
 Is the Ve
 System of Pressure
 Direct or
 If alternat
 Has the A
 Generator
 are they ov
 Where more
 series with
 Are all term
 short circuit
 Position of
 is the vent
 if situated
 are their az
 Earthing,
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 Main Switch
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