

# REPORT ON MACHINERY

No. 15456  
WED. 6-MAR. 1918

Date of writing Report 23<sup>rd</sup> February 1918 When handed in at Local Office 25/2/18 Port of West Hartlepool

No. in Survey held at W. Hartlepool Date, First Survey 8<sup>th</sup> Jan'y/17 Last Survey 19<sup>th</sup> Feb'y 1918

Reg. Book. on the Steel Screw Steamer "City of Florence" (W. Gray & Co's SS No. 879) (Number of Visits 135)

Master E.W. Davies -13-18 Built at W. Hartlepool By whom built W. Gray & Co., Ltd. Tons Gross 6862.29 Net 4391.01 When built 1918-2

Engines made at W. Hartlepool By whom made Central Marine Engine Works when made 1918

Boilers made at W. Hartlepool By whom made Central Marine Engine Works when made 1918

Registered Horse Power 621 Owners The Ellerman Lines Ltd. Port belonging to Liverpool.

Nom. Horse Power as per Section 28 621 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders three (3) No. of Cranks 3

Dia. of Cylinders 26" 44 1/2" 77" Length of Stroke 51" Revs. per minute 70 Dia. of Screw shaft as per rule 15.87" Material of Ingot Steel as fitted 16.3/4" screw shaft

Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tight in the propeller boss Yes If the liner is in more than one length are the joints burned Yes If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 67"

Dia. of Tunnel shaft as per rule 14.39" as fitted 14.5/8" Dia. of Crank shaft journals as per rule 15.11" as fitted 15.5/8" Dia. of Crank pin 15.5/8" Size of Crank webs 9 x 22 5/8" Dia. of thrust shaft under collars 15.5/8" Dia. of screw 18-6" Pitch of Screw 17-9" No. of Blades 4 State whether moveable Yes Total surface 115 sq. ft.

No. of Feed pumps two (2) Diameter of ditto 9" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Bilge pumps two (2) Diameter of ditto 4 1/2" Stroke 30" Can one be overhauled while the other is at work Yes

No. of Donkey Engines three (3) Sizes of Pumps { 10 x 6 x 10 duplex 7 1/2 x 5 1/2 x 12 duplex 9 x 10 1/2 x 10 duplex No. and size of Suctions connected to both Bilge and Donkey pumps In Holds, &c. 6, 3 1/2"

In Engine Room 4, 3 1/2" in fore peak one, 3" in tunnel one, 3 1/2"

No. of Bilge Injections 1 size 9" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size Yes, 3 1/2"

Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible None

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Both

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Discharge Pipes above or below the deep water line above

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes

What pipes are carried through the bunkers Suctions to forward How are they protected hood-cased

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform

OILERS, &c.—(Letter for record S) Manufacturers of Steel John Spencer & Sons, Ltd.

Total Heating Surface of Boilers 8726 sq. ft. Is Forced Draft fitted Yes No. and Description of Boilers three (3), Single-ended

Working Pressure 220 lbs. Tested by hydraulic pressure to 440 lbs. Date of test 8/6/17 No. of Certificate 3457

Can each boiler be worked separately Yes Area of fire grate in each boiler 75.33 sq. ft. No. and Description of Safety Valves to each boiler two (2), Spring Area of each valve 11.04 sq. ft. Pressure to which they are adjusted 225 lbs. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 22" Mean dia. of boilers 15-11 13/16" Length 12-8" Material of shell plates Steel

Thickness 1 13/32" Range of tensile strength 27/30 tons Are the shell plates welded or flanged both Descrip. of riveting: cir. seams 3/16, lap

ing. seams 3/16, dble straps Diameter of rivet holes in long. seams 1 13/32" Pitch of rivets 10 1/2" Lap of plates or width of butt straps 23 1/4"

Percentages of strength of longitudinal joint rivets 88.6 plate 84.8 Working pressure of shell by rules 220 lbs. Size of manhole in shell 16" x 12"

Size of compensating ring 36 1/2 x 32 1/2 x 1 1/2" No. and Description of Furnaces in each boiler 4, Deighton's Material Steel Outside diameter 44 5/8"

Length of plain part top 10 1/16" bottom 10 1/16" Thickness of plates crown 10 1/16" Description of longitudinal joint welded No. of strengthening rings corrugd.

Working pressure of furnace by the rules 225 lbs. Combustion chamber plates: Material Steel Thickness: Sides 1 1/16" Back 1 1/16" Top 1 1/16" Bottom 1"

Pitch of stays to ditto: Sides 9 x 8" Back 9 3/8 x 7 3/4" Top 8 5/8 x 8 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 220 lbs.

Material of stays steel Area at smallest part 1.633" Area supported by each stay 9 3/8 x 7 3/4" Working pressure by rules 260 lbs. End plates in steam space:

Material Steel Thickness 1 1/4" Pitch of stays 18 1/2 x 17" How are stays secured dble nuts Working pressure by rules 221 lbs. Material of stays steel

Area at smallest part 7.22 sq. ft. Area supported by each stay 18 1/2 x 17" Working pressure by rules 238 lbs. Material of Front plates at bottom steel

Thickness 1 1/16" Material of Lower back plate steel Thickness 1" Greatest pitch of stays 15 1/2 x 7 3/4" Working pressure of plate by rules 230 lbs.

Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" Material of tube plates steel Thickness: Front 1 1/16" Back 1 3/16" Mean pitch of stays 9 3/8 x 7 1/2"

Pitch across wide water spaces 14" Working pressures by rules 221 lbs. Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 11 1/2 x 1 1/2" Length as per rule 36 1/2" Distance apart 8 1/2" Number and pitch of stays in each 3, 8 5/8"

Working pressure by rules 227 lbs. Steam dome: description of joint to shell % of strength of joint

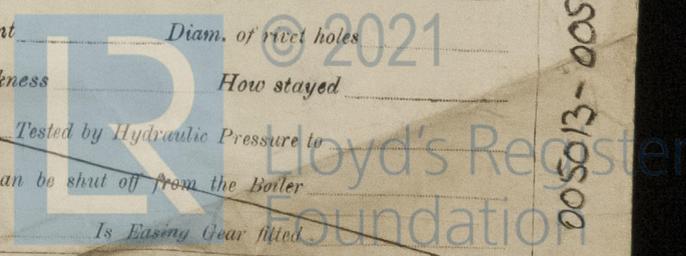
Diameter Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes

Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed

SUPERHEATER. Type Date of Approval of Plan Tested by Hydraulic Pressure to

Date of Test Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Diameter of Safety Valve Pressure to which each is adjusted Is Easing Gear fitted



005013-005019-0142

IS A DONKEY BOILER FITTED? *No.*

If so, is a report now forwarded? *✓*

SPARE GEAR. State the articles supplied: - 4 c.s. propeller blades, set of studs & nuts for blade, one pair of crank pin bushes, one valve spindle, one gland neck bush for piston rod, also for slide rod; one air pump rod; one pair of H.P. ahead eccentric straps; 2 connecting rod, 2 piston rod, & 2 main bearing bolts & nuts; one set of coupling bolts & nuts; one set of <sup>air pump valves & seats</sup> ~~coupling bolts & nuts~~; 20 brass ferrules for condenser; one set of feed donkey valves; one set of ballast donkey valves; 2 feed check valve lids; one set of Weir's feed pump suction & delivery valves; 6 piston bolts & nuts; 6 main boiler tubes; 2 safety valve springs for main boilers; H.P. piston head, fitted with rings; set of spare gear for four engines, also for centrifugal pump; 300 fire bars; some assorted round bars, bolts & nuts & iron plates.

The foregoing is a correct description,  
FOR THE CENTRAL MARINE ENGINE WORKS,

(W. Gray & Co. Ltd.)  
**John Williams** Manufacturer.  
ASSISTANT MANAGER.

Dates of Survey while building  
During progress of work in shops - 1917 Jan 8, 9, 10, 11, 16, 18, 22, 23, 29, 31, Feb 6, 7, 9, 12, 13, 14, 15, 16, 20, 21, 22, 23, 26, 27, 28, March 5, 7, 8, 9, 12, 13, 14, 15, 19, 20, 27, Apr 2, 4, 11, 12, 13, 16, 17, 11, 19, 20, 23, 24, 25, 26, May 1, 3, 4, 7, 8, 9, 14, 15, 16, 17, 18, 21, 22, 23, 24, 31, June 1, 4, 5, 6, 7, 8, 11, 13, 14, 15, 19, 20, 21, 22, 25, 26, 27, 28, 29, July 2, 3, 4, 6, 9, 10, 11, 12, 13, 16, 17, 18, 19, 24, 25, 26, 27, 31, Aug 1, 14, 15, 16, 20, 22, 23, 24, 27, 29, 30, 31, Sep 3, 4, 5, 6, 7, 10, 11, 12, 14, 28, Oct 1, 3, 4, 5, 5, 11, 12, 16, 22, 24, 31, Nov 1, 3, 7, 9, 12, 13, 19, 23, 29, Dec 3, 4, 5, 10, 11, 12, 1918, Jan 18, Feb 5, 1918  
Total No. of visits 19  
Is the approved plan of main boiler forwarded herewith *✓*

Dates of Examination of principal parts - Cylinders 14/8/17 Slides 6/9/17 Covers 16/10/17 Pistons 3/9/17 Rods 4/8/17  
Connecting rods 1/8/17 Crank shaft 9/7/17 Thrust shaft 9/7/17 Tunnel shafts 18/7/17 Screw shaft 18/7/17 Propeller 8/10/17  
Stern tube 1/10/17 Steam pipes tested 1/11 to 10/12/17 Engine and boiler seatings 28/9/17 Engines holding down bolts 5/12/17  
Completion of pumping arrangements 5/12/17 Boilers fixed 12/11/17 Engines tried under steam 12/12/17  
Completion of fitting sea connections 11/9/17 Stern tube 18/1/18 Screw shaft and propeller 18/1/18  
Main boiler safety valves adjusted 12/12/17 Thickness of adjusting washers <sup>Port MB - Port valve 2 1/32"; Starboard valve 2 1/32"</sup> Middle do - " " 55/64"; " " 55/64"  
Starboard do - " " 11/16"; " " 11/16"  
Material of Crank shaft *Hot Steel* Identification Mark on Do. 5859 Material of Thrust shaft *Hot Steel* Identification Mark on Do. 5859  
Material of Tunnel shafts " " Identification Marks on Do. 5859 Material of Screw shafts " " Identification Marks on Do. 5859  
Material of Steam Pipes *Steel, lap-welded* Test pressure 660 lbs.  
Is an installation fitted for burning oil fuel *No.* Is the flash point of the oil to be used over 150°F. *✓*  
Have the requirements of Section 49 of the Rules been complied with *✓*  
Is this machinery duplicate of a previous case *No.* If so, state name of vessel \_\_\_\_\_

General Remarks (State quality of workmanship, opinions as to class, &c.)  
*Evaporator fitted on board - coils of same having been tested to 440 lbs. & body to 50 lbs. water pressure.*

*The workmanship is good. The engines & Boilers of this vessel have been constructed under special survey & fitted on board in accordance with the requirements of the Society's Rules. And are now, in my opinion, in safe-working condition.*

*The case is respectfully submitted for the record of LMC 2,18 in the Register Book.*

It is submitted that  
this vessel is eligible for  
THE RECORD. + LMC 2.18. F.D.

*E.P.S.*  
7.3.18. *J.R.S.*

The amount of Entry Fee ... £ 3 : - : -  
Special ... £ 51 : 1 : -  
Donkey Boiler Fee ... £ : : :  
Travelling Expenses (if any) £ : : :  
When applied for, 20/2/1918  
When received, 26/2/1918

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

Committee's Minute  
Assigned  
FRI. MAR. 8 1918.  
+ L.M.C. 2.18  
*J.D.*



WEST HARTLEPOOL  
Certificate (if required) to be sent to  
The Surveyors are requested not to write on or below the space for Committee's Minute.