

REPORT ON MACHINERY.

No. 70987

Received at London Office

THU. 30 MAY, 1918

Date of writing Report 21st May 1918 When handed in at Local Office 21st May 1918 Part of NEWCASTLE-ON-TYNE

No. in Survey held at Jarrow - Hebburn Date First Survey 12 Jan 1916 Last Survey 16th May 1918

Reg. Book 570 on the S.S. Saranac (Number of Plots 124) Tons { Gross 1150 Net 892 }

Master Built at Hebburn By whom built Palmer Co Ltd When built 1918

Engines made at Jarrow By whom made Palmer Co Ltd when made 1918

Boilers made at Jarrow By whom made Palmer Co Ltd when made 1918

Registered Horse Power Owners Anglo American Oil Co Ltd Port belonging to London

Non. Horse Power as per Section 28 793 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Quadruple Expansion No. of Cylinders four No. of Cranks 4

Dia. of Cylinders 28 1/2, 41, 58 & 84 Length of Stroke 54 Revs. per minute 72 Dia. of Screw shaft as per rule 16 9/8 Material of Steel

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 ✓ 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 ✓ If two

liners are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 5-9"

Dia. of Tunnel shaft as per rule 15 26 Dia. of Crank shaft journals as per rule 16 03 28 Dia. of Crank pin 16 1/4 Size of Crank web 22 1/2 x 11 Dia. of thrust shaft under

collars 16 1/4 Dia. of screw 20-6 Pitch of Screw 18-9" No. of Blades 4 State whether moveable Yes Total surface 120 sq ft

No. of Feed pumps 2 Diameter of ditto 5 1/2 Stroke 27 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 5 Stroke 27 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps 9-10-10, 9-6-10 No. and size of Suctions connected to both Bilge and Donkey pumps

in Engine Room Five 3 1/2" diameter In Hold one 2" port

Is 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 ✓

Are all connections with the sea direct on the skin of the ship Yes Are the 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 None How are they protected ✓

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

Dates of examination of completion of fitting of Sea Connections 18/1/18 and 9/5/18 of Stern Tube 17/1/18 Screw shaft and Propellers 18/1/18 and 9/5/18

Is the Screw Shaft Tunnel watertight None Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c.—(Letter for record 5) Manufacturers of Steel John Spencer & Sons Ltd

Total Heating Surface of Boilers 4392 sq ft Forced Draft fitted Yes No. and Description of Boilers Four Single Ended

Working Pressure 220 lb per sq in Tested by hydraulic pressure 440 lb per sq in Date of test 3/5/17 No. of Certificate 9897

Can each boiler be worked separately Yes Area of fire grate in each boiler 74 sq ft No. and Description of Safety Valves to

each boiler Two direct spring Area of each valve 8.29 sq in Pressure to which they are adjusted 225 lb Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 24" Mean dia. of boilers 16.0" Length 12.0" Material of shell plates Steel

Thickness 1 1/2" Range of tensile strength 29/33 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams 2 R Butt

Long. seams 5 R Butt Diameter of rivet holes in long. seams 1 9/16" Pitch of rivets 10 1/2" Width of butt straps 22 1/4"

Percentage of strength of longitudinal joint 90.6 Working pressure of shell by rules 222 lb Size of manholes in shell 16" x 12"

Use of compensating ring At rivets No. and Description of Furnaces in each boiler 4 Horizontal Material Steel Outside diameter 43 3/8"

Length of plain part top 3 5/8" Thickness of plates bottom 3 5/8" Description of longitudinal joint Welded No. of strengthening rings ✓

Working pressure of furnace by the rules 230 Combustion chamber plates: Material Steel Thickness: Sides 2 1/32" Back 1 1/16" Top 2 1/32" Bottom 1"

Pitch of stays to ditto: Sides 8 1/2 x 7 1/8 Back 9 x 8 1/8 Top 8 1/2 x 7 1/8 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 221

Material of stays Steel Diameter at smallest part 2.030 Area supported by each stay 7.30 Working pressure by rules 250 End plates in steam space:

Material Steel Thickness 1 1/32" Pitch of stays 17 1/2 x 15 1/2" How are stays secured Nuts Working pressure by rules 228 Material of stay Steel

Material Steel at smallest part 6.10 Area supported by each stay 26.40 Working pressure by rules 249 Material of Front plates at bottom Steel

Thickness 1 1/32" Material of Lower back plate Steel Thickness 1" Greatest pitch of stays 14 1/4" Working pressure of plate by rules 256

Diameter of tubes 2 1/2" Pitch of tubes 3 3/4 x 3 3/4 Material of tube plates Steel Thickness: Front 1 1/32" Back 25/32" Mean pitch of stays 9 3/8"

Pitch across wide water spaces 13 1/2" Working pressure by rules 222 lb Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 9 1/2 x 1 3/4 Length as per rule 34 Distance apart 8 1/2" Number and pitch of stays in each three 7 1/2"

Working pressure by rules 220 lb Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked

separately ✓ Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed

Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR.

State the articles supplied :-

SPARE GEAR. State the articles supplied: - Two top & two bottom end bolts & nuts, two main bearing bolts & nuts, one set of coupling bolts & nuts, one set of feed & bilge pump valves, assorted bolts and nuts, a few bars of iron, one propeller shaft, four propeller blades, one set of bottom end bushes, one eccentric and straps, one centrifugal pump vane and shaft etc.

The foregoing is a correct description,

Palmer's Shipbuilding & Iron Co., Ltd.

J. Kemp Manufacturer.

Manager, Engine Dept.

Dates of Survey while building	During progress of work in shops -- During erection on board vessel -- Total No. of visits	Jan. 6, 14, 25 Mar. 7, 20 Apr. 4, 6, 13, 18 May 4, 6 Jun. 1 Jul. 11, 18 Aug. 2, 21, 24, 25 Sept. 11, 18 Oct. 20, 21, 26, 28 Nov. 4, 11, 18 Dec. 2, 9, 16, 23, 30	Jan. 10, 16, 17, 26, 29, Feb. 25, Mar. 8, 12, 21, 23, 28 Apr. 2, 5, 12, 19, 26, 29, May 6, 13, 14, 20, 27, 29, June 7, 14, 18, 24, 27, Oct. 1, 8, 9, 11, 19, 23, 26, 31, Nov. 2, 6, 13, 14, 22, 28, 30, Dec. 13, 18, 19, 25, 31, Jan. 7, 8, 14, 15, 16, 17, 18, 21, 31, Feb. 4, 5, 13, 19, 22, 26, Mar. 5, 6, 14, 26, 27, Apr. 4, 10, 12, 17, 24, 26, 30, May 9, 14, 15, 16, 17, 18, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, June 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, July 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Aug. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Sept. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Oct. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Nov. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, Dec. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31	To the approved plan of main boiler forwarded herewith	Yes
		Total No. of visits	124	124	None
		Total No. of visits	124	124	None

Dates of Examination of principal parts—Cylinders 22/10/17 Slides 3/5/17 Covers 27/8/17 Pistons 27/8/17 Rods 27/8/17
Connecting rods 27/8/17 Crank shaft 3/5/17 Thrust shaft 11/10/17 Tunnel shafts 3/5/17 Screw shaft 27/8/17 Propeller 16/1/18
Stern tube 14/9/17 Steam pipes tested 2/3/18, 27/2/18 Engine and boiler seatings 18/1/18 Engines holding down bolts 24/4/18
Completion of pumping arrangements 16/5/18 Boilers fixed 24/4/18 Engines tried under steam 30/4/18
Main boiler safety valves adjusted 30/4/18 Thickness of adjusting washers 26/5/50
Material of Crank shaft Steel Identification Mark on Do. 5/1/18 6M Material of Thrust shaft 18/1/18 6M Identification Mark on Do. 18/1/18 6M
Material of Tunnel shafts Steel Identification Marks on Do. 18/1/18 6M Material of Screw shafts Steel Identification Marks on Do. 18/1/18 6M
Material of Steam Pipes Steel & Copper Test pressures Steel 660 and Copper 420 lb per sq. in.
Is an installation fitted for burning oil fuel yes Is the flash point of the oil to be used over 150°F. yes

Have the requirements of Section 49 of the Rules been complied with

Is the flash point of the oil to be used over 150°F. yes

Is this machinery duplicate of a previous case yes

If so, state name of vessel *L. T. Cadillac*. No *70543*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has*

General Remarks (State quality of workmanship, opinions as to class, &c.) The machinery of this vessel has been constructed under special survey, the materials and workmanship are of good quality, it has been securely fitted on board and satisfactorily tested under steam, three of the boiler burning oil and the forward stoked boiler burning coal, the oil burning fittings have now been removed as it is intended to burn coal on the outward voyage.

Although the requirements of the rules have been carried out for burning oil below 150° flash point, the Owners desire that the vessel be classed for burning oil fuel above 150° and the Superintendent (Mr Morton) states that this Society will be given due notice should the Owners at some future time desire to carry oil of a flash point below 150° so that the discharge pipe line to sump tank may be removed.

The machinery of this vessel is now in my opinion eligible for record. \therefore L M C 5-18 (m.s.d.) for burning oil fuel above 156° Fahr.

plan German Lober stud test injuries and 15 forming, costing
water pipe reports now attached.

It is suggested that
this vessel is eligible for
the award + 1 MAC 5. 18. F

The amount of Entry Fee *11* £ *3* : *0*

Special (A.) £ 59.13

Donkey Boilers Fee ... £ ...

Travelling Expenses (if any) £ : ✓

When applied for.

17 MAY 1918

When received,

27 MAY 1918

Committee's Minute

FRI. 31 MAY. 1973

Assigned

1 + 10. 5. 18 F.R. WRITTEN
 Titled for Oil Fuel 5.18 F.R. above 150°

MACHINERY CERTIFICATE
WRITTEN.

THE RECORD. + LMC 5. 18. F.D
Fitted for oil fuel 5. 18. F.P. above 150° F.

Engineer-Surgeon to H.M. Register of British & Foreign Shipping: 30/5/18

30/5/19

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Foundation