

## REPORT ON MACHINERY.

No. 72583

TUE. 16 MAR. 1920

Received at London Office

ing Report 12th Mar 1920 When handed in at Local Office 27th Mar 1920 Port of NEWCASTLE-ON-TYNE

Survey held at Jarrow, Newcastle Date, First Survey 10th May 1918 Last Survey 3rd March 1920

Ship on the S. S. Har Mehtar (Number of Visits 73)

Gross 5500

Net 3500

When built 1920

By whom built Armstrong Whitworth &amp; Co

When made 1920

By whom made Palmers Shipbuilding &amp; Iron Co

When made 1920

By whom made do

When made 1920

Registered Horse Power

Owners The Shipping Controller Port belonging to London

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted Yes

Description of Engines Triple Expansion

No. of Cylinders Three No. of Cranks 3

Diameter of Cylinders 27" 44" 73" Length of Stroke 48" Revs. per minute 74

Diameter of Screw shaft as per rule 14 1/2" Material of screw shaft 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

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

are fitted, is the shaft lapped or protected between the liners Yes

Length of stern bush 5-0 1/2"

Diameter of Tunnel shaft as per rule 13 3/4" Dia. of Crank shaft journals as per rule 14 1/2"

Dia. of Crank pin 14 1/2" Size of Crank web 28 1/2"

Dia. of thrust shaft under

screws 14 3/4" Dia. of screw 17-6" Pitch of Screw 16-6"

No. of Blades 4 State whether moveable No

Total surface 95.2 sq ft

No. of Feed pumps 2 Diameter of ditto 4" Stroke 24"

Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4" Stroke 24"

Can one be overhauled while the other is at work Yes

No. of Donkey Engines 3 Sizes of Pumps 10 1/2" 14 1/2" 24", 9 1/2" 7 1/2" 18"

No. and size of Suctions connected to both Bilge and Donkey pumps

In Holds, 3 1/2" in fore hold, one 3" in cross

Bilge Injections 1 sizes 13" Connected to condenser, or to circulating pump

Is a separate Donkey Suction fitted in Engine room &amp; size Yes 3 1/2"

Are 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 Yes

Are 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

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

How are they protected

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

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

Screw Shaft Tunnel watertight Yes

Is it fitted with a watertight door No

worked from Entry by hatch at

End of tunnel.

ERS, &amp; Co. (Letter for record S) Manufacturers of Steel

Heating Surface of Boilers 2665 sq ft Is Forced Draft fitted Yes No. and Description of Boilers 3 Single Ended

Working Pressure 180 lb per sq in Tested by hydraulic pressure to 360 lb per sq in Date of test 27/5/19

No. of Certificate 9233

9234

9235

Can boiler be worked separately Yes Area of fire grate in each boiler 63.3 sq ft

No. and Description of Safety Valves to

Area of each valve 9.62 sq ft Pressure to which they are adjusted 185 lb per sq in

Are they fitted with easing gear Yes

Distance between boilers or uptakes and bunkers or woodwork 30" Inside

Mean dia. of boilers 15-6" Length 11-6" Material of shell plates Steel

Range of tensile strength 28/32 tons Are the shell plates welded or flanged No

Descrip. of riveting: cir. seams 2 R Lap

Diameter of rivet holes in long. seams 1 5/16" Pitch of rivets 9 1/8"

Lap of plates or width of butt straps 19 1/2"

Working pressure of shell by rules 182 lbs

Size of manhole in shell 16" x 12"

Description of longitudinal joint Welded

No. of strengthening rings

Thickness of plates crown 1 1/32" bottom 1 1/16"

Description of longitudinal joint

Combustion chamber plates: Material Steel Thickness: Sides 2 3/32" Back 1 1/16" Top 2 3/32" Bottom 2 3/32"

Working pressure by rules 180

Area at smallest part 2.75 sq ft

Area supported by each stay 20.9 sq ft

Working pressure by rules 192

Material of stays Steel

Thickenss 1 1/32" Pitch of stays 20/22 x 21 1/2"

How are stays secured Double nuts

Area supported by each stay 44.6 sq ft

Working pressure by rules 199

Material of Front plates at bottom Steel

Thickenss 2 7/32" Greatest pitch of stays 13 3/8" x 5 3/4"

Working pressure of plate by rules 157

Pitch of tubes 2 3/4" Material of tube plates Steel

Thickness: Front 3 1/32" Back 3/4" Mean pitch of stays 9 7/8"

Cross wide water spaces 13 7/8" Working pressures by rules 181 lbs

Girders to Chamber tops: Material Steel Depth and

of girder at centre 10 x 1 1/4" Length as per rule 35 1/16"

Distance apart 10 9/8" Number and pitch of stays in each House, 9 1/4"

pressure by rules 157 lbs

Steam dome: description of joint to shell None

% of strength of joint

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

Working pressure of shell by rules Crown plates Thickness How stayed

HEATER. Type None Date of Approval of Plan

Tested by Hydraulic Pressure to

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

Pressure to which each is adjusted

Is Easing Gear fitted

W2200-0027M



IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR.

State the articles supplied:—2 top & 2 bottom connecting rod bolts & nuts, 2 main bearing bolts and nuts, one set of coupling bolts & nuts, one full pump suction and one discharge valve, one bilge pump suction and one discharge valve, 3 main & 3 donkey check valves, 24 assorted bolts and nuts, 6 cylinder cover studs & nuts, 6 steam chest cover studs and nuts, 12 junk ring studs and nuts, 3 bars round iron, 3/8", 1/2", 5/8", and 1", one propeller shaft and one propeller.

The foregoing is a correct description,

Palmers Shipbuilding & Iron Co., Ltd.

J. Kerr  
General Manager, Engine Works.

Manufacturer.

Dates of Survey while building  
During progress of work in shops -- May 10/14 Jun 6/10 July 26 Aug 8.26.27.30 Sept 4.6.10.13.17.20.26.27 Oct 2.3.10.11.16.18  
During erection on board vessel -- 22.25.30 Nov 1.5.8/19.21.22.26.29 Dec 4.5.6.9.11.12.17.23 Jan 8.13.14.17.20 Feb 3.18  
Total No. of visits 73

Is the approved plan of main boiler forwarded herewith? Yes

Dates of Examination of principal parts—Cylinders 24/7.75.26/5.10/9 Slides 24/5.10/9 Covers 7/9 30/10/18 Pistons 22/10/18 Rods 22/10/18  
Connecting rods 30/10/18 Crank shaft 16/10.5/11/18 Thrust shaft 26/9.5/11/18 Tunnel shafts 26/9.2/10 Screw shaft 26/10.30/10/18 Propeller 19/11/18  
Stern tube 5/12/18 Steam pipes tested 16/10/19, 23/10/19 Engine and boiler seatings 10/10/19 Engines holding down bolts 21/10/19  
Completion of pumping arrangements 3/3/20 Boilers fixed 12/11/19 Engines tried under steam 17/11/19 3/3/20  
Completion of fitting sea connections 27/9/19 Stern tube 27/9/19 Screw shaft and propeller 29/9/19  
Main boiler safety valves adjusted 18/11/19 Thickness of adjusting washers PB 7/16-7/32 CB 21/32-7/16 SB 1/2  
Material of Crank shaft Steel Identification Mark on Do. 3540 N Material of Thrust shaft Steel Identification Mark on Do. 354  
Material of Tunnel shafts do Identification Marks on Do. do Material of Screw shafts do Identification Marks on Do. A  
Material of Steam Pipes Steel & Copper Test pressure 540 + 360 lb per sq. in. B

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? Yes

Is this machinery duplicate of a previous case? If so, state name of vessel: Has Rawat member of GB (Lancaster) No 7223

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

has been built under special survey, the materials & workmanship are of good quality, it has been securely fitted on board and has been tested under full steam at a mooring trial burning coal and later at a full speed trial in the North Sea, burning oil. The machinery of this vessel is now in my opinion eligible for recording LMC 3-20 (in red) fitted for oil fuel 3-20 above 150°F in the register book.

8 forging & castings reports, 2 reports on firmness, one on steam and steel test specimens now forwarded.

It is submitted that this vessel is eligible for THE RECORD. + LMC 3-20 F.D.

FITTED FOR OIL FUEL 3-20 F.P. ABOVE 150°F. 17/3/20

The amount of Entry Fee ... £ : : When applied for, Special ... £ 46 : 11 : 1 MAR 1920 Donkey Boiler Fee ... £ : : When received, Travelling Expenses (if any) £ : : 26.4.20 28

Committee's Minute

Assigned

FRI. 19 MAR. 1920

+ LMC 3-20 F.D. Fitted for oil fuel F.D. above 150°F.

