

## REPORT ON MACHINERY.

No. 75169

Date of writing Report

19

When handed in at Local Office

Received at London Office

26/1/22 Port of

NEWCASTLE-ON-TYNE.

JAN. 31 1922

Survey held at Newcastle-on-Tyne

Date, First Survey

11th Oct/20

Last Survey

12th Jan 1922

on the Steel S.S. EL GRILLO

(Number of Visits 25)

Master Burdis Built at Newcastle

By whom built Armstrong Whitworth &amp; Co. Ltd.

Gross 7267 7289

Net 4410 4414

When built 1921

Engines made at Newcastle

By whom made Armstrong Whitworth &amp; Co. Ltd.

when made 1922

Machinery made at Newcastle

By whom made Armstrong Whitworth &amp; Co. Ltd.

when made 1922

Registered Horse Power

Owners Lobitos Oil Fields Ltd.

Port belonging to London

Horse Power as per Section 28

678

Is Refrigerating Machinery fitted for cargo purposes

no.

Is Electric Light fitted

Yes

GINES, &amp; Co.—Description of Engines Inverted Triple Expansion

No. of Cylinders 3

No. of Cranks 3

No. of Cylinders 29" - 48" - 81" Length of Stroke 54" Revs. per minute 73

Dia. of Screw shaft as per rule 16.83" Material of screw shaft as fitted 17.4" steel

the screw shaft fitted with a continuous liner the whole length of the stern tube no liner

Is the after end of the liner made water tight

the propeller boss 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

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

Length of stern bush 70" Kerr's brand

Dia. of Tunnel shaft as per rule 14.6" as fitted 14.6"

Dia. of Crank shaft journals as per rule 15.33" as fitted 15.34"

Dia. of Crank pin 15.34" Size of Crank webs 24"x9.5" Dia. of thrust shaft under

bars 15.34" Dia. of screw 19.0" Pitch of Screw 17.9"

No. of Blades 4 State whether moveable Yes Total surface 114 sq ft

of Feed pumps 2 Diameter of ditto 4.5" Stroke 27" Can one be overhauled while the other is at work Yes

of Bilge pumps 2 Diameter of ditto 4.5" Stroke 27" Can one be overhauled while the other is at work Yes

of Donkey Engines 5 Sizes of Pumps 2 General Service 7.5" 4.5" 6" No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room Three - 3.5" In Holds, &amp;c. none

of Bilge Injections 1 sizes 12" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room &amp; size Yes 9"

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

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

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 Both

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

at pipes are carried through the bunkers none How are they protected

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

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

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

MILLERS, &amp; Co.—(Letter for record Y) Manufacturers of Steel J. Spencer &amp; Sons Ltd.

Total Heating Surface of Boilers 10065 sq ft Is Forced Draft fitted Yes No. and Description of Boilers 3 S.E. Multitubular

Working Pressure 180 lbs Tested by hydraulic pressure to 320 lbs Date of test 25.10.21 No. of Certificate 9616

each boiler be worked separately Yes Area of fire grate in each boiler 82 sq ft No. and Description of Safety Valves to

boiler 2 Spring loaded Area of each valve 14.18 sq ft Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes

Least distance between boilers or uptakes and bunkers on woodwork 2'0" Mean dia. of boilers 17'0" Length 12'0" Material of shell plates Steel

Thickness 1.32" Range of tensile strength 34,000 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D.R. Lap

seams T.R.-D.B.S. Diameter of rivet holes in long. seams 1.32" Pitch of rivets 9.4" Lap of plates or width of butt straps 20"

percentages of strength of longitudinal joint rivets 85.9 Working pressure of shell by rules 186 Size of manhole in shell 20"x16"

of compensating ring 20.4"x1.32" No. and Description of Furnaces in each boiler 4 Deighton Material Steel Outside diameter 45.5"

Thickness of plain part top 1.32" Thickness of plates crown 1.32" Description of longitudinal joint weld No. of strengthening rings

Working pressure of furnace by the rules 180 Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 1/16" Top 9/16" Bottom 1"

No. of stays to ditto: Sides 8"x7.5" Back 10.8"x9" Top 8"x7.5" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180

Material of stays none Area at smallest part 1.45 sq ft Area supported by each stay 600" Working pressure by rules 209 End plates in steam space:

Material Steel Thickness 1.5" Pitch of stays 24.4"x18" How are stays secured D.N. + W Working pressure by rules 197 Material of stays Steel

Area at smallest part 7.06 sq ft Area supported by each stay 425 sq ft Working pressure by rules 208 Material of Front plates at bottom Steel

Thickness 1.32" Material of Lower back plate Steel Thickness 2.9" Greatest pitch of stays 15" Working pressure of plate by rules 204

Diameter of tubes 2.5" Pitch of tubes 3.34" Material of tube plates Steel Thickness: Front 13/16" Back 23/32" Mean pitch of stays 11.4"

Chamber across wide water spaces 17.4" Working pressures by rules 189 Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 8.4" 1.5" Length as per rule 32.34" Distance apart 8" Number and pitch of stays in each 3-7.5"

Working pressure by rules 183 Steam dome: description of joint to shell none % of strength of joint

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

No. of rivets Working pressure of shell by rules Crown plates Thickness How stayed

SUPERHEATER. Type None 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

Lloyd's Register Foundation

W 261-0085



IS A DONKEY BOILER FITTED? *No.*

If so, is a report now forwarded? ☒

SPARE GEAR. State the articles supplied:— *One C.I. Propeller - linerless screwshaft - 4 main Bearing Bolts & Nuts - 2 Bottom End Bolts & Nuts - 2 Top end Bolts & Nuts - Set of Coupling Bolts - Pin crank pin Brasses - Eccentric Strap & Sheave - slide valve spindle - 2 dozen junk ring Bolts - set of rings and springs for each piston, piston valve - air pump rod - set of air pump valves - 24 Condenser tubes - 50 females - 3 sets of main and Auxiliary Check valves - 3 sets Safety valve springs - 24 plain & 2 stay tubes for Boilers - set of valves, spindles & springs for O.F. pumps - set of valves, spindles & springs for Ballast pump - Feed and Bilge pumps' valves - Assorted Bolts, nuts and iron -*

The foregoing is a correct description,

*R. W. G. ARMSTRONG, WHITWORTH & CO. LTD.*  
*Sutton* Manufacturer.

|                                |   |                                       |  |
|--------------------------------|---|---------------------------------------|--|
| Dates of Survey while building | { | During progress of work in shops - -  | <i>1920. Oct 11. 19. 26. Nov 5. 8. 10. 15. 18. 24. Dec 9. 13. 15. 26. 1921. Jan 17. 21. 25. 28. Feb 10. 17. 18. Mar 1. 17. 19. 21.</i>         |
|                                |   | During erection on board vessel - - - | <i>May 24. June 6. 11. 16. 17. 27. July 4. 7. 20. 22. Aug 3. 15. 20. 24. 28. 31. Sep 1. 2. 5. 6. 7. 9. 12. 22. 23. 26. 28. 29.</i>             |
|                                |   | Total No. of visits                   | <i>Oct 3. 4. 5. 7. 10. 11. 13. 17. 19. 21. 25. 26. 27. 28. 31. Nov 2. 4. 7. 10. 14. 17. 28. Dec 5. 9. 17. 19. 20. 24. 30. 1922. Jan 4. 12.</i> |

*85* Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders *28.9.21* Slides *25.10.21* Covers *28.10.21* Pistons *28.10.21* Rods *25.10.21*  
Connecting rods *25.10.21* Crank shaft *22.9.21* Thrust shaft *22.9.21* Tunnel shafts ☒ Screw shaft *19.10.21* Propeller *13.10.21*  
Stern tube *4.7.21* Steam pipes tested *19.10.21* Engine and boiler seatings *31.10.21* Engines holding down bolts *19.12.21*  
Completion of pumping arrangements *12.1.22* Boilers fixed *19.12.21* Engines tried under steam *12.1.22*  
Completion of fitting sea connections *31.10.21* Stern tube *31.10.21* Screw shaft and propeller *31.10.21*  
Main boiler safety valves adjusted *12.1.22* Thickness of adjusting washers *For Bk F<sub>2</sub> "A<sub>2</sub>" 2 1/2" Bk F-A<sub>2</sub> 3 1/2" Bk F<sub>1/6</sub> A<sub>2</sub> 7 1/2"*  
Material of Crank shaft *S.M.S* Identification Mark on Do. *R.L.A. 9.21* Material of Thrust shaft *S.M.S* Identification Mark on Do. *R.L.A. 9.21*  
Material of Tunnel shafts ☒ Identification Marks on Do. ☒ Material of Screw shafts *S.M.S* Identification Marks on Do. *R.L.A. 10.21*  
Material of Steam Pipes *Solid Draw Steel* Test pressure *540 lbs/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 *Yes*

Is this machinery duplicate of a previous case *Yes* If so, state name of vessel *"El Oro"*

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

*constructed under Special Survey. The workmanship and materials are sound and good. The Boilers were tested by hydraulic pressure and their safety valves adjusted under steam. The main and Auxiliary machinery were tried out under working conditions satisfactorily. An Oil Fuel Burning plant on the Hallend - Howard system has been efficiently installed. The requirements of Section 49 of the Rules have been complied with. The screwshaft is linerless and fitted with a Hocker's flange. In my opinion, this vessel is eligible to be classed in the Society's Register Book with notation  $\frac{1}{2}$  L.M.C. 1.22 fitted for Oil Fuel 1.22. F.P. above 150°F.*

*It is submitted that this vessel is eligible for THE RECORD.*

*F L.M.C. - 1.22 F.D*

*Fitted for Oil Fuel, 1.22, F.P. above 150°F.*

*Ans. 1/2/22*

|                                  |            |                   |
|----------------------------------|------------|-------------------|
| The amount of Entry Fee ...      | £ 6 : -    | When applied for, |
| Special ...                      | £ 108 : 18 | <i>30/1/1922.</i> |
| Donkey Boiler Fee ...            | £ :        | When received,    |
| Travelling Expenses (if any) £ : |            | <i>7.2.22</i>     |

*R. Lee Ames*

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

*+ L.M.C. 1.22 F.D.  
Fitted for oil fuel 1.22  
F.P. above 150°F*

CERTIFICATE WRITTEN



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