

## REPORT ON OIL ENGINE MACHINERY.

No. 9593

Date of writing Report 16 When handed in at Local Office 14 8- 16 Port of *Belfast*  
 No. in Survey held at *Belfast* Date, First Survey *3<sup>rd</sup> June 1925* Last Survey *16<sup>th</sup> August 1926*  
 Reg. Book. *Single* on the *Twin* { *Triple* } Screw vessels *"Accra"*  
 Master *Belfast* Built at *Belfast* By whom built *Harland & Wolff Ltd* Yard No. *616* When built *1926*  
 Engines made at *Belfast* By whom made *Harland & Wolff Ltd* Engine No. *616* When made *1926*  
 Donkey Boilers made at *Annan* By whom made *Cochran & Co* Boiler No. *9691* When made *1925*  
 INDICATED Horse Power *9000* Owners *African S S Coy Ltd (Elder Dempster & Co) Managers* Port belonging to *Liverpool*  
 Nom. Horse Power as per Rule *1651* Is Refrigerating Machinery fitted for cargo purposes *no* Is Electric Light fitted *yes*

## OIL ENGINES, &amp;c.—Type of Engines

Diesel

2 or 4 stroke cycle *4* Single or double acting *D.A.*

Maximum pressure in cylinders *500 lbs* No. of cylinders *12* No. of cranks *12* Diameter of cylinders *680 mm = 26 7/8"*  
 Length of stroke *1400 mm = 55 1/2"* Revolutions per minute *100* Means of ignition *Compression* Kind of fuel used *F. P. Albu 150°F*  
 Is there a bearing between each crank *yes* Span of bearings (Page 92, Section 2, par. 7 of Rules) *920 mm*  
 Distance between centres of main bearings *1350 mm* Is a flywheel fitted *yes* Diameter of crank shaft journals *as per Rule as approved 460 mm*  
 Diameter of crank pins *460 mm* Breadth of crank webs *as per Rule as approved 295 mm* Thickness of ditto *as per Rule as approved 205 mm*  
 Diameter of flywheel shaft *as per Rule as approved 460 mm* Diameter of tunnel shaft *as per Rule 13.18" as fitted 14.0"* Diameter of thrust shaft *as per Rule 14.5" as fitted 15.0"*  
 Diameter of screw shaft *as per Rule approved 15 5/8"* 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 watertight 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* If without liners, is the shaft arranged to run in oil *yes*  
 Type of outer gland fitted to stern tube *Lignum vitae bush* Length of stern bush *6'-0"* Diameter of propellers *16'-0"*  
 Pitch of propellers *16'-6"* No. of blades *3* state whether moveable *yes* Total surface *68 sq* square feet  
 Method of reversing *air* Is a governor or other arrangement fitted to prevent racing of the engine when declutched *yes* Thickness of cylinder liners *48 mm*  
 Are the cylinders fitted with safety valves *yes* Means of lubrication *forced* Are the exhaust pipes and silencers water cooled or lagged with non-conducting material *yes*  
 If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine *yes*  
 Exhausts led up funnel *yes* No. of cooling water pumps *2* Is the sea suction provided with an efficient strainer which can be cleared within the vessel *yes*  
 No. of bilge pumps fitted to the main engines *none* Diameter of ditto *yes* Stroke *yes*  
 Can one be overhauled while the other is at work *yes* No. of auxiliary pumps connected to the main bilge lines *3 + 1 emergency pump driven electric motor*  
 Sizes of pumps *2 Bilge pumps 100 tons per hour each No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room 4 @ 3 1/2" and in holds, etc. No. 1, 2 & 3 1/2" 2 @ 3 1/2" & 2 @ 2 1/2" diam No. of ballast pumps 1 How driven Electric motor Sizes of pumps 200 tons per hour*  
 Is the ballast pump fitted with a direct suction from the engine room bilges *yes* State size *4"* Is a separate auxiliary pump suction fitted in Engine Room and size *yes 2 @ 5 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 *yes* 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 floor plates *yes*  
 Are the discharge pipes above or below the deep water line *below* Are they each fitted with a discharge valve always accessible on the plating of the vessel *yes*  
 Are all pipes, cocks, valves and pumps in connection with the machinery 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 *4 ft platform* If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork *yes*  
 No. of main air compressors *2 (each engine)* No. of stages *3* Diameters *860 x 475 x 205 mm* Stroke *560 mm* Driven by *Main Engines*  
 No. of auxiliary air compressors *Two* No. of stages *2* Diameters *460 x 405 mm* Stroke *260 mm* Driven by *Electric Motors*  
 No. of small auxiliary air compressors *1* No. of stages *2* Diameters *106 x 34 mm* Stroke *80 mm* Driven by *Steam cylinder*  
 No. of scavenging air pumps *none* Diameter *yes* Stroke *yes* Driven by *yes*  
 Diameter of auxiliary Diesel Engine crank shafts *as per Rule as fitted See separate report* Are the air compressors and their coolers made so as to be easy of access *yes*

## AIR RECEIVERS:—No. of high pressure air receivers

4

Internal diameter *416 mm* Cubic capacity of each *290 litres*

material *Steel* Seamless, lap welded or riveted longitudinal joint *Seamless Hot drawn* Range of tensile strength *28 to 32 tons*  
 thickness *1 1/2 mm* working pressure by Rules *1180 lbs* No. of starting air receivers *4* Internal diameter *6'-2"*  
 Total cubic capacity *2800* Material *Steel* Seamless, lap welded or riveted longitudinal joint *riveted*  
 Range of tensile strength *28 to 32 tons* thickness *1 1/2"* Working pressure by rules *3 1/2 lbs* Is each receiver, which can be isolated, fitted with a safety valve as per Rule *yes* Can the internal surfaces of the receivers be examined *yes* What means are provided for cleaning their inner surfaces *Manhole in end* Is there a drain arrangement fitted at the lowest part of each receiver *yes*



yes

yes

one Pair  
2 "  
1 Pair  
1 byline  
4 sets of  
2 byline  
2 sets of  
1 "  
2 inlet  
3 exhaust  
2 "  
2 "  
starting

yes

See separate list.

yes Receivers

Plans now forwarded with this report. (to be returned.)

3. plan Arrangement of pipes above floor.

2 " " Tank & ledge pipes.

2 " " Air system

1 " Crank shafts, 1 plan Steel oil settling tanks

1 " Air Receivers.

The foregoing is a correct description,  
FOR HARLAND AND WOLFF, LIMITED.

J. D. Keay

Manufacturer.

[illegible]

Dates of Survey while building	During erection on board vessel	21-22-25-27-28-29 June 1-13-23-22-23-23-24-26
	Total No. of visits	21-22-23-25-28 July 1-8-9-21-22-23-23-24-26
Dates of Examination of principal parts	Cylinders	12-16-17-18-20-21-22-23-24-25-26
	Covers	2-12-25-26
Dates of Examination of principal parts	Pistons	8-12-25
	Rods	24-1-26
Dates of Examination of principal parts	Connecting rods	18-1-26, 11-2-26
	Engine seatings	26-2-26
Dates of Examination of principal parts	Stern tube	23-2-26
	Propeller	26-2-26
Dates of Examination of principal parts	Screw shaft	5-2-26
	Engines tried under working conditions	28-4-26

Dates of Examination of principal parts—Cylinders 1-10-26  
Screw shaft 5-2-26 Propeller 26-7-26 Stern 28-7-26  
Crane shaft 4-12-26 Thrust shaft 22-1-26 Tunnel shafts 24-1-26 Engines tried under working conditions 28-7-26  
Completion of pumping arrangements 8-7-26  
Screw shaft and propeller 9-2-26

Crank shaft 1-12-75, 5-1-76 Thrust shaft 22-1-76 Completion of pumping arrangements 8-7-76 Screw shaft and propeller 9-2-76  
Engines holding down bolts 1-6-76 Stern tube 26-2-76 & 9-2-76 Identification Mark on Do. 897+142  
connections 9-2-76 Material of thrust shaft Steel 116, 155, 1

Engines holding down bolts 1-6-16 Stern tube 16-2-16 Steel Identification Mark on Do. 116, 155, 156

Completion of fitting sea connections 9-3-76 Identification Mark on Do. 616 wps Material of thrust shaft Steel Identification Marks on Do. 116, 155, 156

Material of screw shafts Steel Identification Marks on Do. 116, 155, 156

Completion of fitting sea connections	Identification Mark on Do. <i>016</i>	Identification Marks on Do. <i>016</i>
Material of crank shaft <i>Steel</i>	<i>934, 937, 9114, 9919, -961-921-955-981.</i>	Material of screw shafts <i>Steel</i>
Material of tunnel shafts <i>Steel</i>	Identification Marks on Do. <i>941-948</i>	Identification Marks on Do. <i>941-948</i>
	<i>yes</i>	

Material of crank pins Steel Identification Marks on Do. yes  
Material of tunnel shafts Steel  
Is the flash point of the oil to be used over 150° F. yes If so, state name of vessel ✓  
Is this oil of a previous case no

Is the flash point of the oil to be used over 150° F. no If so, state name of vessel ✓

Is this machinery duplicate of a previous case no

Quality of workmanship, opinions as to class, &c. OK under Special Survey. Water

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

General Remarks (Slate quality of the  
The machinery of this vessel has been built and  
manmanship good. Hydraulic tests satisfactory. The engines  
Conditions and manoeuvred as required by the  
eligible in my opinion

The Machinery & Hydraulic & workmanship good. Hydraulic tried under full working conditions and maintained as to full sale working condition and eligible in my opinion MC. 8-26, Tail Shaft C.L.

tried under full working condition and are in good safe working condition and have records **✱ LMC. 8-26, Tail Shaft** Electric Light.

be classed and have records kept for oil fuel. 8-26 - F.P above 150°F, Electric Light.

Sitted for oil fuel. 8-26-11

When applied for,

The amount of Entry Fee ... £ 6 : 0 : 0 : When applied for,  
 £ 141 : 5 : 6 : 12<sup>th</sup> Aug 1926

W. D. Williams & Co.  
 Engineer Surveyor to Lloyd's Register of Ships

The amount of Entry Fee ... £ 6:0 0  
 Special ... £ 141:5 6  
 When received, 12<sup>th</sup> Aug 1926  
 Fee ... £ 16:16 0  
 21<sup>st</sup> 8<sup>th</sup> 1926  
 Engineer Surveyor to Lloyd's Register of

Particulars	£	s	d	When received,
Special ...	£	16	16	0
Director's Office Fee	£	4	15	0
Electric Light	£			
Travelling Expenses (if any)	£			

When received, 31. 8. 1926

20 AUG 1926

WRITTEN

Electric Light.  
Travelling Expenses (if any) £ 47:15 0/1 5/10 15/10  
@ 200+1 @ 50kw  
650kw total.  
Committee's Minute  
FRI. 20 AUG 1920  
DATE WRITTEN  
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Committee's Minute  
+ L. MC 8:26 CR  
Oil Engines

Assigned 7 A. H. S. 29 Oil Engines

Assigned





