

REC'D NEW YORK JUN 30 1921

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# REPORT ON OIL ENGINE MACHINERY.

No. 5984

TUE JUL 26 1921

pt. 4b.

Received at London Office

Port of Copenhagen

Date, First Survey 5<sup>th</sup> April 1918 Last Survey 10<sup>th</sup> May 1920

Number of Visits 53

Survey held at Copenhagen

on the Single Twin Triple Screw vessels William Penn

Built at Wilmington By whom built Pusey & Jones Co. Yard No. 17 When built ✓

Engines made at Copenhagen By whom made Akt. Burmeister & Wain Engine No. 696 When made 1918

Boilers made at ✓ By whom made ✓ Boiler No. ✓ When made ✓

Indicated Horse Power 2 x 1750 Owners ✓ Port belonging to ✓

Net Horse Power as per Rule 2 x 428 857 Is Refrigerating Machinery fitted for cargo purposes ✓ Is Electric Light fitted ✓

ENGINES, &c.—Type of Engines 2 off Vertical Diesel Oil Engines 2 or 4 stroke cycle 4 Single or double acting Single

Maximum pressure in cylinders 35 Kg. per Cm<sup>2</sup> No. of cylinders 2 x 6 No. of cranks 2 x 6 Diameter of cylinders 740 mm = 29 1/8"

Length of stroke 1150 mm 45 1/4" Revolutions per minute 115 Means of ignition air compression Kind of fuel used Crude oil / Flash point above 150°F

Are there bearings between each crank yes Span of bearings (Page 92, Section 2, par. 7 of Rules) 980 mm

Distance between centres of main bearings 1500 mm Is a flywheel fitted yes Diameter of crank shaft journals as per Rule 442 mm ✓

Diameter of crank pins 456 mm Breadth of crank webs as per Rule 586 mm ✓ Thickness of ditto as per Rule 247 mm ✓

Diameter of flywheel shaft as per Rule 441 mm ✓ Diameter of tunnel shaft as per Rule 456 mm ✓ Diameter of thrust shaft as per Rule 14.2" ✓

Diameter of screw shaft as per Rule 456 mm ✓ Is the screw shaft fitted with a continuous liner the whole length of the stern tube ✓

Is the liner made watertight in the propeller boss ✓ If the liner is in more than one length are the joints burned ✓

Does the liner do 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 ✓

Are liners fitted, is the shaft lapped or protected between the liners ✓ If without liners, is the shaft arranged to run in oil ✓

Is an outer gland fitted to stern tube ✓ Length of stern bush ✓ Diameter of propeller ✓

Number of blades ✓ state whether moveable ✓ Total surface ✓ square feet ✓

Is a governor or other arrangement fitted to prevent racing of the engine Aspinall's Governor when disengaged Thickness of cylinder liners 60 mm

Are the cylinders fitted with safety valves yes Means of lubrication forced lubrication Are the exhaust pipes and silencers water cooled or lagged with the exhaust

conducting material the pipes are water cooled If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine the exhaust will be led up along the mast

No. of cooling water pumps 3 for sea water Is the sea suction provided with an efficient strainer which can be cleared ✓

No. of bilge pumps fitted to the main engines none Diameter of ditto ✓ Stroke ✓

No. of auxiliary pumps connected to the main bilge lines 2 duplex How driven Electromotors

No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room Rotary wing pump

No. of ballast pumps 1 off How driven by Electric motor Sizes of pump 150 tons capacity

Is a separate auxiliary pump suction fitted in ✓

Are all the bilge suction pipes fitted with roses ✓ Are the roses in Engine Room always accessible ✓

Are all connections with the sea direct on the skin of the ship ✓

Are they fixed sufficiently high on the ship's side to be seen without lifting the floor plates ✓

Are they each fitted with a discharge valve always accessible on the plating of the vessel ✓

Are the bilge suction pipes, cocks and valves arranged so as to prevent any ✓

Is the screw shaft tunnel watertight ✓ Is it fitted with a watertight door ✓

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork ✓

No. of stages 3 ✓ Diameters 450 mm ✓ Stroke 350 mm ✓ Driven by the main engines

No. of stages 2 ✓ Diameters 460 mm ✓ Stroke 280 mm ✓ Driven by an electromotor

No. of stages 2 ✓ Diameters 106 mm ✓ Stroke 80 mm ✓ Driven by a direct coupled steam engine

Diameter 166 mm ✓ Stroke ✓ Driven by ✓

Are the air compressors and their coolers made so as to be easy of access yes

RECEIVERS:—No. of high pressure air receivers 2 off Internal diameter 450 mm Cubic capacity of each 500 Litres

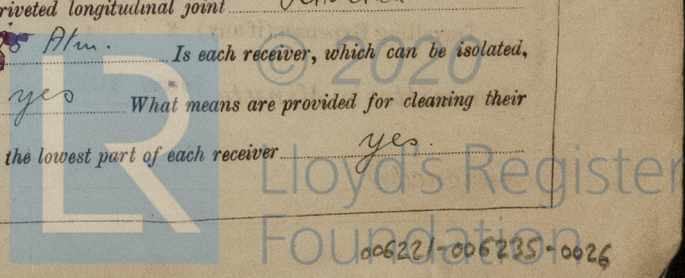
Seamless, lap welded or riveted longitudinal joint Lap welded Range of tensile strength 35-45 Kg. per cm<sup>2</sup>

working pressure by Rules 65.4 Atm. No. of starting air receivers 2 off Internal diameter 6' 1 1/16"

Material S. M. Steel Seamless, lap welded or riveted longitudinal joint Riveted

Is each receiver, which can be isolated, yes What means are provided for cleaning their yes

Can the internal surfaces of the receivers be examined yes Is there a drain arrangement fitted at the lowest part of each receiver yes



# IS A DONKEY BOILER FITTED?

## HYDRAULIC TESTS:

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS	14/9, 14/10, 8/11, 1918.	15 lbs. per sq. in.	30 lbs. per sq. in.	R	
COVERS	5/4 x 15/4 1919.	15 - "	30 - "	"	
JACKETS	22/4 x 23/4 "	15 - "	30 - "	"	
PISTON WATER PASSAGES					
MAIN COMPRESSORS—1st STAGE	15/10 x 4/12 1918	15 - "	30 - "	"	
2nd	10/2 1919.	15 - "	30 - "	"	
3rd	4/2 - - -	60 Atm.	90 Atm.	"	
AIR RECEIVERS—STARTING	2/6 x 10/6 1919.	25 Atm.	39 Atm.	"	
INJECTION	13/9. 18	65 Atm.	130 Atm.	"	
AIR PIPES	10/2 1919	60 "	90 "	"	
FUEL PIPES	8/11 1918	75 "	150 "	R	
FUEL PUMPS	9/10 1918	75 "	150 "	"	
SILENCER	5/7 1918	15 lbs. per sq. in.	30 lbs. per sq. in.	"	
WATER JACKET	10/6 x 23/6. 19	15 lbs. per sq. in.	30 lbs. per sq. in.	"	
SEPARATE FUEL TANKS					

PLANS. Are approved plans forwarded herewith for shafting *Receivers* *Separate Tanks*  
*The approved plans for Burmeister & Wain's yard No. 314 Afrika*  
*Date of approval 24 January 1919 and 30th May 1918.*

SPARE GEAR *as per accompanying list.*

The foregoing is a correct description.

Manufacturer.

Dates of Survey while building	During progress of work in shops - -	5/10, 16, 24 April, 7, 13, 21 May, 4, 7, 14 June, 5, 29 July, 7, 12 Aug., 2, 4, 13, 14 Sep., 5, 7, 9, 14 Oct., 8 Nov., 4, 14 Dec., 1918. 4, 8, 30 Jan., 1, 10, 19 Feb., 5, 26, 31 March.									
	During erection on board vessel - -	5, 12 May, 2, 10, 13 June, 2, 9, 11 July, 6, 20 Aug., 12 Sep., 1 Nov., 3, 22 Dec., 1919. 31 Jan., 20 Feb., 10 May 1920.									
	Total No. of visits	55.									
Dates of Examination of principal parts—Cylinders	7/6, 12/8, 14/7, 8/11. 18	5/7, 2/9, 14/9, 4/11. 18	13/9, 8/10, 8/11. 22/4								
	Covers	20/4, 25/4, 2/8, 17/11. 18	Pistons	23/4, 11/7, 20/8, 17/11. 18	Rods	7/6, 14/8, 8/11. 19	Connecting rods	14/12. 11			
Crank shaft	8/11, 5/3. 19	Thrust shaft	7/8, 2/9, 9/10. 18	Tunnel shafts		Screw shaft		Propeller		Stern tube	Engine seatings
Engines holding down bolts		Completion of pumping arrangements		Engines tried under working conditions		Engines holding down bolts		Completion of fitting sea connections		Screw shaft and propeller	R No. 5531
Material of crank shaft	SM I Steel.	Identification Mark on Do.	No. 5581-82. 3.19.19	Material of thrust shafts	SM I Steel.	Identification Mark on Do.		Material of tunnel shafts		Identification Marks on Do.	
Material of screw shafts		Identification Marks on Do.		Material of screw shafts		Identification Marks on Do.		Material of tunnel shafts		Identification Marks on Do.	

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 *m/s 'Afrika'.*

General Remarks (State quality of workmanship, opinions as to class, &c.) *In accordance with the Rules for Special Survey we have examined material and workmanship from the commencement of construction until the trial of the main & auxiliary engines, main & auxiliary compressors under full power working condition on the testing bench and found it good in every respect. The used in the construction of the engines and the air receivers have been tested as required by the Rules, and per certificate produced. The dimensions are as specified and in accordance with the Rules, and plans approved for Burmeister & Wain's Yard No. 314, Afrika, please see London letters E dated the 1919 and 30th May 1918.*

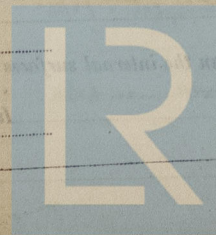
Recommend the vessel's machinery to have notation of *SLMC* when the machinery has been fitted aboard.

The amount of Entry Fee	£	:	:	When applied for,
Special	£	:	:	12.5.19
Donkey Boiler Fee	£	:	:	When received,
Travelling Expenses (if any)	£	:	:	19.

Committee's Minute *New York JUL 12 1921*

Assigned

*See Phil. 4190*



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