

Rpt. 4b.

REPORT ON OIL ENGINE MACHINERY.

No. 9678

28 JAN 1921

Received at London Office

Date of writing Report

19

When intended in at Local Office

27-1-1927

Port of

Belfast.

No. in Survey held at
Reg. Book.

Belfast

Date, First Survey

23rd July 1925

Last Survey

10th Jan 1927

Number of Visits 102

87931

Single
Twin
Triple

Screw vessels

"Apapa"

Tons

Gross

Net

Master

Built at

Belfast

By whom built

Harland & Wolff Ltd

Yard No.

695

When built

1926

Engines made at

Belfast

By whom made

Harland & Wolff Ltd

Engine No.

695

When made

1926

Donkey Boilers made at

Amman

By whom made

Cochran & Co

Boiler No.

When made

1926

INDICATED
Horse Power

9000

Owners

African S.S. Co (Ltd) (Dempster & Sons)

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, &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^m = 26.4^m

Length of stroke

1100^m = 55.12

Revolutions per minute

100

Means of ignition

Compression

Kind of fuel used

F.P. oil 150° F

Is there a bearing between each crank

yes

Span of bearings (Page 92, Section 2, par. 7 of Rules)

920^m

Distance between centres of main bearings

1350^m

Is a flywheel fitted

yes

Diameter of crank shaft journals

as per Rule approved

as fitted 460^m

Diameter of crank pins

460^m

Breadth of crank webs

as per Rule as approved

as fitted 285^m

Thickness of ditto

as per Rule as approved

as fitted 205^m

Diameter of flywheel shaft

as per Rule as approved

as fitted 460^m

Diameter of tunnel shaft

as per Rule

13.4^mas fitted 14.0^m

Diameter of thrust shaft

as per Rule

14.5^mas fitted 15.0^m

Diameter of screw shaft

as per Rule

15.11^mas fitted 15.5^m

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 Bushed

Length of stern bush

6'-0"

Diameter of propeller

16'-0"

Pitch of propeller

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^m

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

Exhausts led up funnel

No. of cooling water pumps

2 fresh + salt water pumps

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

Stroke

Can one be overhauled while the other is at work

No. of auxiliary pumps connected to the main bilge lines

3 + 1 emergency

How driven

Electric motors

1 Ball pump 200 hrs per hr Emergency bilge pump 100 hrs per hr

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

4 @ 3 1/2"

in holds, etc.

100 1-2-3 holds 2 @ 3 1/2" dia 2 @ 2 1/2" dia 1 @ 3 1/2" dia

No. of ballast pumps

1

How driven

Electric motor

Sizes of pumps

200 hrs per hr

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

Bolt

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 deck bridge

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 main air compressors

2 (each engine)

No. of stages

3

Diameters

860^m 415^m 202^m

Stroke

560^m

Driven by

main engines

No. of auxiliary air compressors

Two

No. of stages

2

Diameters

460^m 405^m

Stroke

260^m

Driven by

electric motors

No. of small auxiliary air compressors

one

No. of stages

2

Diameters

106^m 34^m

Stroke

80^m

Driven by

steam cylinders

No. of scavenging air pumps

none

Diameter

Stroke

Driven by

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^m

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

14.5^m

working pressure by Rules

1180 lbs

No. of starting air receivers

4

Internal diameter

6'-8"

Total cubic capacity

2800

Material

Steel

Seamless, lap welded or riveted longitudinal joint

riveted

Range of tensile strength

28 to 32 tons

thickness

12 1/2"

Working pressure by rules

37 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

GENERAL

IS A DONKEY BOILER FITTED?

yes

If so, is a report now forwarded?

yes

HYDRAULIC TESTS:—

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS					
COVERS	22.4.26 & 9.4.26	500 lbs	15 lbs	date & WPB	
JACKETS	26.3.26 & 4.5.26	15 lbs	50 lbs	WPB	
PISTON WATER PASSAGES	10.5.26 & 27.7.26	15 lbs	50 lbs	WPB	
MAIN COMPRESSORS—1st Stage L.P.	19.3.26 & 22.6.26	41 lbs	150 lbs	date & WPB	
2nd " M.P.	19.3.26 & 30.6.26	220 lbs	500 lbs	date & WPB	
3rd " H.P.	18.3.26 & 30.6.26	1000 lbs	2000 lbs	date & WPB	
AIR RECEIVERS—STARTING	22.4.26, 28.4.26, 8.6.26 5-12-25	356 lbs	585 lbs	22.4.26 WPB, 8.6.26 WPB 5-12-25 WPB	Nos 35, 36, 37 & 2
INJECTION	10.6.26, 16.6.26	1000 lbs	2000 lbs	date & WPB	Nos 4-5-6-7 T.
AIR PIPES	28.5.26 to 30.9.26	356 lbs	415 lbs	WPB R.L.A.	
FUEL PIPES	8.10.26	15	100 lbs	✓	
FUEL PUMPS	4.5.26 & 4.6.26	1000	2000	date & WPB	
SILENCER					
WATER JACKETS	26.5.26 & 5.4.26	5 lbs	15 lbs	WPB	
SEPARATE FUEL TANKS	16.6.26	8 lbs	15 lbs	WPB	

PLANS. Are approved plans forwarded herewith for shafting (If not, state date of approval)

5.12.26

Receivers 11.12.26

Separate Tanks 17.11.26 & 3

SPARE GEAR as attached

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

F. F. F. F. F.

Manufacturer.

Dates of Examination of principal parts—Cylinders 22.4.26, 15.6.26 Covers 22.4.26 & 9.4.26
Pistons 15.6.26 Rods 20.4.26 Connecting rods 5.5.26, 2
Crank shaft 11.5.26 & 14.6.26 Thrust shaft 14.6.26 Tunnel shafts 4.5.26 & 26.6.26
Screw shaft 22.6.26 Propeller 28.6.26 Stern tube 26.5.26 Engine seatings 30.4.26
Engines holding down bolts 4.10.26 Completion of pumping arrangements 25.11.26
Engines tried under working conditions 16.12.26
Completion of fitting sea connections 30.7.26 Stern tube 30.6.26
Screw shaft and propeller 30.4.26
Material of crank shaft H Steel Identification Mark on Do. 695 WPB
Material of thrust shaft H Steel Identification Mark on Do. 695 WPB
Material of tunnel shafts H Steel Identification Marks on Do. 1234, 1164, 1234, 1209, 1183, 1230, 1217 dates
Material of screw shafts H Steel Identification Marks on Do. 1234, 1164, 1234, 1209, 1183, 1230, 1217 dates
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.V. "Acacia"

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

The machinery of this vessel has been built under special survey. The materials and workmanship are of a satisfactory hydraulic tests have been applied. The engines were tried under full working conditions at 1000 & a deep sea trials. They were tested for manoeuvring as required by the rules. The machinery is now in good order & eligible, in our opinion for classification with notations L.M.C. 1.27, C.L., fitted for oil fuel 1.27 F.P. above 150° F., Electric light.

The vessel was subsequently examined in dry dock. The propellers outside fastenings were found to be in order.

The amount of Entry Fee ... £ 6 : 0 : 0
Special ... £ 141 : 5 : 6
Donkey Boiler Fee ... £ 16 : 16 : 0
Electric Light ... £ 11 : 11 : 0
Travelling Expenses (if any) ... £ 11 : 11 : 0
See S.L. Report.
Committee's Minute

When applied for.

When received.

William Butler & R. Lee Ames
Engineer Surveyor to Lloyd's Register of Shipping.

TUES. 1 FEB 1927

Assigned

L.M.C. 1.27
Oil engines

Continuation of Report No. 9678 dated 27-1-27 on the

Spare i Gear

in connecting rod bushes lower end with bolts

" " " upper " "
 a main bearing bushes & 4 bolts + nuts for same
 live & lines, 1 Piston & rod Complete with sleeve & studs.

2 piston rings, 1 piston rod stuffing box complete with 4 sets pkgs rings
unders & overs complete (one top & one bottom)

Studs or nuts for inlet, exhaust, fuel, starting & safety valves

" " " " each top & bottom cylinder Cms.

Values with casings, springs etc for top Cues 1 & 2 ditto for bottom Cues.

ust " " " " " " " " 3 " " "

" spindles with seating pins complete for \log values + 12 ditto for both values

" skating rings for top values + 12 ditto for bottom values.

king valves with casings & springs complete for top cover.

of n n n n n n bottom

spindles complete " " top

" bottom.

values with casing & springs complete for top corners & 3 ditto for bottom corners.

spindles for top values + 6 ditto for bottom values

body seats for top values & 3 ditto for bottom values.

all safety valves complete for top & bottom covers.

up rolls of each size with pins

th of Chain of humpst & each size fitted + 10 chain links of each size

is Compressor valves & cages complete. 1 safety valve fresh stage air Cyl.

Compressor valves & rings complete. Safety Valve fresh stage dis-
piston rings for air compressors & 1 set springs for new Engine

fisher plugs for air compressors & 12er springs for one in
compressor top & bottom ends on rods. 1 pair bushes with bolts

Additional spring for each single exhaust valve.

critical springs for each size exhaust valves
and deliver air combustion values shown: 10 HP 57 P 5 PP

no delivery as compressor valve springs, 10 H₂, 8 M₂, & L₂.
inlet pipe - at 11:15 - to bit. Col. in. 2. 1/2. H. 5. 1/2.

inlet pipes & fittings for piston cooling gear Com
the Cooling pipe and 1 1/2" @ 1 1/2"

the Cooling pipes for piston Cooling gear.

plete Cooling Coil for H.P. air compressor, 12 M.P. L.P. coil tubes

the pipe for fuel pp delivery, valve blas air & blast air bottles.

1 pp plungers + one complete set parts for same top + bottom

also assorted bolts nuts & iron, joints & jointing material of kind

Working Air Compressors:- 1 complete Set valves + 1 set Cages.

packing rings 12 cooler tubes for HP & LP coolers.

propeller shaft complete, 1 set coupling bolts

Speller blades & 1 set (study) fruits for same

ports for one face of each thrust block

Cranks Shaft-Coupling bolts & nuts.

William Butler

W329-0074(2/2)