

REPORT ON OIL ENGINE MACHINERY.

No. 32463

FRI. FEB. 18 1921

Date of writing Report

19

When handed in at Local Office

17. 2 - 2/ Port of

Received at London Office

No. in Survey held at
Reg. Book.

Date, First Survey

20/12/19

Last Survey

11/2/ 1921

Number of Visits

Tons { Gross 174
Net 78.on the { Single
Twin
Triple } Screw vessels

"STRATUM"

Master J. Mc Donald. Built at

Hull

By whom built

Lumpkin & Sons

Yard No. 163

When built 1921

Engines made at

Stockholm

By whom made

J. & F. Robinson & Co.

Engine No. 163

When made 1915.

Donkey Boilers made at

By whom made

Boiler No. — When made —

Brake Horse Power

120

Owners

Lumpkin & Sons

Port belonging to

Hull

Nom. Horse Power as per Rule

45

34

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

Yes

L. ENGINES, &c.

Type of Engines

Cylinder hot bulb.

2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders

230

No. of cylinders

2

No. of cranks

2

Diameter of cylinders

15"

Length of stroke

16"

Revolutions per minute

275

Means of ignition

Lumpkin & hot bulb.

Kind of fuel used

crude oil.

Is there a bearing between each crank

Yes

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

18 1/2"

Distance between centres of main bearings

27 1/2"

Is a flywheel fitted

Yes

Diameter of crank shaft journals

as per Rule 5.52"

as fitted 5 1/2"

Diameter of crank pins

5 1/2"

Breadth of crank webs

as per Rule

as fitted 8 5/8"

Thickness of ditto

as per Rule 3 5/8"

as fitted 3 5/8"

Diameter of flywheel shaft

as per Rule

as fitted 3 7/8"

Diameter of tunnel shaft

as per Rule

as fitted 5.075"

Diameter of thrust shaft

as per Rule

as fitted 5 1/8"

Diameter of screw shaft

as per Rule

as fitted 5 1/8"

Is the screw shaft fitted with a continuous liner the whole length of the stern tube

No

Is the after end of the liner made watertight in 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 liners are fitted, is the shaft lapped or protected between the liners

—

If without liners, is the shaft arranged to run in oil

No

Type of outer gland fitted to stern tube

—

Length of stern bush

1-1 1/2"

Diameter of propeller

4-10"

Pitch of propeller

42"

No. of blades

3

state whether moveable

No

Total surface square feet

Method of reversing

engine.

Is a governor or other arrangement fitted to prevent racing of the engine when declutched

Yes

Thickness of cylinder liners

Are the cylinders fitted with safety valves

No

Means of lubrication

light feed.

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

NR valve.

No. of cooling water pumps one 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

one

Diameter of ditto

3"

Stroke

5 1/8"

Can one be overhauled while the other is at work

—

No. of auxiliary pumps connected to the main bilge lines

Two

How driven

Main & Aux.

Sizes of pumps

one 3" & one 4"

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

2 & 2"

and in holds, etc.

4 & 2"

No. of ballast pumps

Two

How driven

Main & Auxiliary

Sizes of pumps

one 3" & one 4"

Is the ballast pump fitted with a direct suction from the engine room bilges

Yes

State size

3"

Is a separate auxiliary pump suction fitted in

Engine Room and size

Yes 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

None

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

above.

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

None

Is it fitted with a watertight door

—

worked from

—

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

one

No. of stages

Two

Diameters

17 1/2" & 2 1/8"

Stroke

6 1/8"

Driven by

Main engine.

No. of auxiliary air compressors

one

No. of stages

Two

Diameters

2 1/2" & 5 1/2"

Stroke

3 1/2"

Driven by

Separate petrol engine.

No. of small auxiliary air compressors

—

No. of stages

—

Diameters

—

Stroke

—

Driven by

—

No. of scavenging air pumps

blank case compression

Diameter

—

Stroke

—

Driven by

—

Diameter of auxiliary Diesel Engine crank shafts

as per Rule

as fitted

—

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

—

AIR RECEIVERS:—

No. of high pressure air receivers

one

Internal diameter

4 1/2"

Cubic capacity of each

42 cub. ft.

material

Steel

Seamless, lap welded or riveted longitudinal joint

Seamless.

Range of tensile strength

28 to 32 tons.

thickness

3/16"

working pressure by Rules

350 lbs. sq. in.

No. of starting air receivers

Three

Internal diameter

8", 12" & 20"

Total cubic capacity

22.5 cub. ft.

Material

Steel

Seamless, lap welded or riveted longitudinal joint

Seamless, lap welded or riveted

Range of tensile strength

28 to 32 tons

thickness

3/8", 3/16" & 7/16"

Working pressure by rules

100 lbs. sq. in.

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

large size Yes

inner surfaces

bolted down.

Is there a drain arrangement fitted at the lowest part of each receiver

Yes

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

HYDRAULIC TESTS:—

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS	See letter 24/5/18	230 lbs	✓	✓	examined before & after trial.
COVERS	"	✓	✓	✓	"
JACKETS	"	✓	✓	✓	"
PISTON WATER PASSAGES	"	✓	✓	✓	"
MAIN COMPRESSORS—1st STAGE	"	90 lbs	✓	✓	"
2nd "	"	350 "	✓	✓	"
3rd "	"	✓	✓	✓	"
AIR RECEIVERS—STARTING	3/2/21	100	500 lbs. 350 lbs.	3/12/20 8/1/21	three small receivers interchangeable
INJECTION	3/12/20	350 lbs	1100 lbs	3/12/20 JH	✓
AIR PIPES	3/2/21	350 "	1100 "	3/12/20 JH	✓
FUEL PIPES	✓	400	✓	✓	examined under working conditions
FUEL PUMPS	✓	"	✓	✓	✓
SILENCER	✓	Atmos	✓	✓	✓
WATER JACKET	✓	10 lbs	✓	✓	✓
SEPARATE FUEL TANKS	28/6/20	Atmos	10 lbs	28/6/20 AS.	✓

PLANS. Are approved plans forwarded herewith for shafting *See letter 24/5/18* Receivers *See* Separate Tanks *See*

SPARE GEAR *See* *See* complete with head connections & full set needle valves *See* *See* complete with rings & nuts for main engine and set piston rings for aux engine, 2 connecting rods and two connecting rods for main and two main bearings for each piston of the main and aux compressors, one complete set piston rings for the aux compressor, one fuel pump, complete set of working parts for same complete set spare for piston compressor, the set valves & fuel supply pump, & one set valves for circulation & fuel pump. A quantity of assorted bolts & nuts. Spare pipes & flanges for engine & boiler. Brackets, 1 pair top & bottom end bearings. &c. &c.

FOR LIVINGSTONE & COOPER LTD. *A Livingstone* Manufacturer.

Dates of Survey while building	During progress of work in shops -- 1919 - Dec 20 th to Feb 11/21	During erection on board vessel --	Total No. of visits 27.
Dates of Examination of principal parts	Cylinders 18/8/20 Covers 18/8/20 Pistons 19/7/20 Rods 19/7/20 Connecting rods 19/7/20	Crank shaft 19/7/20 Thrust shaft 17/9/20 Tunnel shafts -- Screw shaft 5/7/20 Propeller 9/10/20 Stern tube 5/7/20 Engine seatings 10/9/20	Engines holding down bolts 21/9/20 Completion of pumping arrangements 3/2/21 Engines tried under working conditions 3/2/21
Completion of fitting sea connections 5/7/20	Stern tube 5/7/20	Screw shaft and propeller 5/7/20 & 9/10/20	Material of crank shaft <i>Steel</i> Identification Mark on Do. -- Material of thrust shaft <i>Steel</i> Identification Mark on Do. --
Material of tunnel shafts --	Identification Marks on Do. --	Material of screw shafts <i>Steel</i> Identification Marks on Do. --	

Is the flash point of the oil to be used over 150° F. *For main engines See.*
Is this machinery duplicate of a previous case *No* If so, state name of vessel --

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has not been built under special survey but it has been opened up & examined & the workmanship found good. See letter 24/5/18. After fitting on board the machinery was tried under full working conditions. Head & stern with satisfactory results. The aux compressor was also tried and was found good & efficient and a sufficient reserve of air contained in the air bottles for starting purposes. The machinery throughout is now in a good & efficient condition & eligible in my opinion to have the record L.M.C.-2-21 but without the PS marked in Red in the British Register Book as stated in the letter 24/5/18*

The amount of Entry Fee ...	£ 2-0-0	When applied for, 17.2.1921
Special ...	£ 11-5-0	
Donkey Boiler Fee ...	£ 2-14-4	When received, 17.3.1921
Travelling Expenses (if any) £		

Committee's Minute

Assigned

L.M.C. 221
oil engines

See letter
Engineer Surveyor to Lloyd's Register of Shipping.

