

REPORT ON OIL ENGINE MACHINERY.

No. 6112.

Received at London Office

FRI. 8 APR. 1921

of writing Report

2nd April 1921

When handed in at Local Office

19

Port of

Copenhagen

Date, First Survey

24th June 1914

Last Survey

26th Feb. 1921

1921

Number of Visits 37

in Survey held at

Copenhagen

Book.

on the ^{Single} ~~Triple~~ Screw vessels

"KÖBENHAVN"

Tons { Gross: Net:

Built at

Leith

By whom built

Ramage & Ferguson Ltd.

Yard No. 256

When built 1914-20.

ines made at

Copenhagen

By whom made

Akt. Burmeister & Wain's Maskin- & Skibbyggeri

Engine No. 555

When made 1914-1921.

By whom made

Boiler No.

When made

Boilers made at

Owners Akt. Det Østasiatiske Kompagni

Port belonging to

Copenhagen

ke Horse Power

500

1. Horse Power as per Rule

91

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

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

max pressure in cylinders 35 kg. per cm²

No. of cylinders 4

No. of cranks 4

Diameter of cylinders 480 mm = 18 29/32"

th of stroke 660 mm = 25 31/32"

Revolutions per minute 180

Means of ignition

air compression

Kind of fuel used Grade oil Flash point above 150°F

ere a bearing between each crank

yes.

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

580 mm

ace between centres of main bearings

980 mm

Is a flywheel fitted

yes

Diameter of crank shaft journals

280 mm 276

of crank pins

280 mm

Breadth of crank webs

374 mm 267

Thickness of ditto

155 mm 155

of flywheel shaft

approved

280 mm 276

Diameter of tunnel shaft

as per Rule

Diameter of thrust shaft

227 mm 230 mm with 89 mm hole.

of screw shaft

approved

230 mm

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

yes.

fter 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.

ner 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.

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.

outer gland fitted to stern tube

yes.

Length of stern bush

1150 mm

Diameter of propeller

2900 mm = 9'6"

propeller

5'-5"

No. of blades

2 off

state whether moveable yes and reversible

yes

Total surface 19.12 square feet

of reversing propeller blades

The Feige's patent automatic reversible

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

yes

Thickness of cylinder liners 42 mm

cylinders fitted with safety valves

yes

Means of lubrication

forced lubrication

Are the exhaust pipes and silencers water cooled or lagged with

ducting 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

es will be led up the mast.

No. of cooling water pumps one

Is the sea suction provided with an efficient strainer which can be cleared

he vessel

yes.

No. of bilge pumps fitted to the main engines

one

Diameter of ditto

125 mm

Stroke 110 mm

be overhauled while the other is at work

No. of auxiliary pumps connected to the main bilge lines

How driven

pumps

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

olds, etc.

No. of ballast pumps

How driven

Sizes of pumps

ast pump fitted with a direct suction from the engine room bilges

State size

Is a separate auxiliary pump suction fitted in

om and size

Are all the bilge suction pipes fitted with roses

Are the roses in Engine Room always accessible

ices on Engine Room bulkheads always accessible

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

alves or cocks

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

charge pipes above or below the deep water line

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

es, cocks, valves and pumps in connection with the machinery accessible at all times

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

tion between the sea and the bilges

Is the screw shaft tunnel watertight

Is it fitted with a watertight door

m

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

n air compressors

one off

No. of stages

3

Diameters

LP = 455 mm MP = 385 mm HP = 100 mm

Stroke

160 mm

Driven by the main engine

liary air compressors

No. of stages

2

Diameters

LP = 106 mm HP = 34 mm

Stroke

80 mm

Driven by an electromotor.

ll auxiliary air compressors

one of

No. of stages

2

Diameters

LP = 106 mm HP = 34 mm

Stroke

80 mm

Driven by

enging air pumps

Diameter

Stroke

Driven by

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

yes.

RECEIVERS:—No of high pressure air receivers

one off

Internal diameter

314 mm 450 mm

Cubic capacity of each

150 litres 290 "

imums Martin Steel

Seamless, lap welded or riveted longitudinal joint

Lap welded

Range of tensile strength 41-47 Kg. per mm²

working pressure by Rules

65 Atm.

No. of starting air receivers

one off

Internal diameter

3'-0"

o capacity

53 cub. feet

Material

Seamless, lap welded or riveted longitudinal joint

Riveted.

tensile strength

Shell 28-32 Tons

Ends 26-30 "

thickness

Shell plates = 5/8"

End plates = 1/16"

Working pressure by rules 25 Atm.

h a safety valve as per Rule

yes

Can the internal surfaces of the receivers be examined

yes

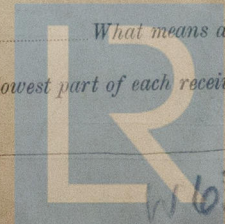
What means are provided for cleaning their

yes.

surfaces The starting air receiver is fitted with man hole

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

yes.



Lloyd's Register Foundation

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

pt. 9a.

ort of

Copenhagen

Continuation of Report No. 6/12 dated 2nd April 1921. on the

HYDRAULIC TESTS:--

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS					
COVERS	15 Decbr. 1914	15 lbs. per sq. in.	30 lbs. per sq. in.	R	
JACKETS	23 -- --	15 -- --	30 -- --	"	
PISTON WATER PASSAGES					
MAIN COMPRESSORS—1st Stage	7 December 1914	15 lbs. per sq. in.	30 lbs. per sq. in.	R	
2nd "	23 -- --				
3rd " Air Sp. S.	29 -- --				
AIR RECEIVERS—STARTING	11 Decbr. 1914	25 Atm.	39 Atm.	R	
INJECTION	20 April 1915 & 13 Dec. 1916	65 -- --	130 -- --	R	
AIR PIPES					
FUEL PIPES					
FUEL PUMPS	18 January 1915	15 lbs. per sq. in.	150 lbs. per sq. in.	R	
SILENCER					
WATER JACKET	14 December 1914	15 lbs. per sq. in.	30 lbs. per sq. in.		
SEPARATE FUEL TANKS	20 October		10 lbs. per sq. in.		

PLANS. Are approved plans forwarded herewith for shifting (If not, state date of approval) yes Receivers of Starting air receiver Separate Tanks ✓

SPARE GEAR As per accompanying list.

AKTIESELSKABET
BURMEISTER & WAIN'S MASKIN- OG SKIBSTYGER.

H. Blacere

Manufacturer.

Dates of Survey while building: During progress of work in shops - 24 June, 16 July, 21 Aug, 29 Sept, 5, 14, 20 Oct, 9, 16, 23 Nov, 7, 11, 14, 15, 17, 23, 27 Dec. 1914, 18, 21, 22, 29 Jan. 2, 4, 7, 13, 23 Feb. 3 March, 20 April 1915. During erection on board vessel - 3 Dec. 1916. 30 Nov. 1, 10, 13, 18 Dec. 1920. 27 Jan. 26 Feb. 1921.

Total No. of visits ✓

Dates of Examination of principal parts: Cylinders 5/10, 7/11, 11/12, 15/12, 14/1. Covers 1/12, 15/12, 14/1. Pistons 1/12, 15/12, 14/1. Rods 14/10, 7/11, 15/12, 14/1. Connecting rods 7/12, 14/1, 24/1.

Crank shaft 14/1, 15/1. Thrust shaft 24/1, 16/1, 20/1, 17/1. Tunnel shafts 24/1, 16/1, 20/1, 17/1. Screw shaft 24/1, 16/1, 20/1, 17/1. Propeller 24/1, 16/1, 20/1, 17/1. Stern tube 24/1, 16/1, 20/1, 17/1. Engine seatings 24/1, 16/1, 20/1, 17/1.

Engines holding down bolts ✓ Completion of pumping arrangements ✓ Engines tried under working conditions in ship 13/1, 23/1, 3/2.

Completion of fitting sea connections ✓ Stern tube ✓ Screw shaft and propeller ✓

Material of crank shaft SMI Steel Identification Mark on Do. R. No. 4152, 115 A.F.P. Material of thrust shaft SMI Steel Identification Mark on Do. R. No. 4020 1/14.

Material of tunnel shafts ✓ Identification Marks on Do. ✓ Material of screw shafts SMI Steel Identification Marks on Do. R. No. 3990 9/14.

Is the flash point of the oil to be used over 150° F. yes.

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.)

In accordance with the Rules for Special Survey we have examined the material and workmanship from the commencement of construction and found it good in every respect. The material used in the construction of the engines and air receivers have been tested and found to be in accordance with the Rules as per certificates produced. - The dimensions are as specified and in accordance with the Rules, the approved plans and the requirements contained in London letters E dated the 26th May, 1914, 6th, 18th, 27th Aug. 1914. - The engines have been tested under full power working condition on the testing bench in ship and found to work satisfactorily. -

Recommend the machinery to have notation of LMC - with date, when it has been fitted aboard the vessel.

The amount of Entry Fee ... £. 42 : 86

When applied for,

Special ... £. 471 : 46

5. 4. 19 21.

Donkey Boiler Fee ... £. :

When received,

Travelling Expenses (if any) £. :

25. 4. 19 21.

Committee's Minute

TUE. 18 OCT. 1921

Assigned

See Lth 38 Apt No 16008

TUE. NOV. 9 1921

A. C. F. J. J. J.
Engineer, Supervisor to Lloyd's Register of Shipping.

MACHINERY CERT
WRITTEN.

Spare Gear for the Diesel Oil Engine Burmeister & Wain's No. 555 for the Steel 5 Mast Sailing Vessel Yard No. 256 building by Ramage & Ferguson, Ltd. South.

Main Engine with air compressor.

- 1 top brass for connecting-rod bottom end.
- 2 Connecting rod bottom end bolts and nuts. 1 pair of cross head brasses.
- 2 main bearing bottom brasses. 3 main bearing top brasses.
- 4 main bearing bolts and nuts. 7 piston Ramsbottom packing rings.
- 2 exhaust valves complete with chests, seats, spindles and springs &c.
- 4 seats for exhaust valves.
- 1 starting-air valve complete with chest, seat spindle and spring &c.
- 2 fuel valve complete with chest, seat, spindle and spring &c.
- 1 guide roller for each valve lever with pins complete.
- 1 stud for each balance lever. -
- 8 bolts and nuts for cylinder cover. -
- 1 spindle for the overflow valve.
- 1 air compressor H.P. suction valve with liner complete.
- 1 " " H.P. delivery valve with do. -
- 1 " " M.P. suction valve with do.
- 1 " " M.P. delivery valve with do.
- 1 " " L.P. suction valve with do.
- 1 " " L.P. delivery valve with do.
- 6 " " H.P. piston packing rings.
- 5 " " M.P. do.
- 4 " " L.P. do.
- 7 suction valve for the oil fuel pump.
- 1 delivery valve for do.
- 1 piston complete for do.
- 1 set of leather packings complete for the oil fuel pump.
- 1 valve and 2 seats for the cooling water pump.
- 4 springs for air-inlet-valves.
- 4 " " for exhaust valves.
- 4 " " for fuel valves.
- 4 " " for starting valve.
- 4 " " for cylinder cover safety valve.
- 2 " " for the starting gear.
- 1 " " for oil fuel divider safety valve.
- 1 " " for 75 Atm. safety valve.
- 2 " " for L.P. cooler.
- 1 " " for the governor.
- 1 " " for the bilge pump.
- 2 " " for the cooling water pump.
- 2 " " for hand gear to fuel pump.
- 1 " " for revolution counter. -
- 2 " " for indicator gear.
- 1 " " for the eccentric gear.

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W631-0123 3

Spare Gear for the Diesel Oil Engine Burmeister & Wain's No. 555
for the Steel 5 Mast Sailing Vessel Yard No. 256 building by Ramage & Ferguson, Ltd. Leith.

(Continued). Main Engine with air compressor.

- 1 spring for fuel pump suction valve.
- 1 — " for do. delivery valve.
- 1 — " for do. check valves.
- 4 — " for air compressor H.P. suction valves.
- 4 — " for do. H.P. delivery valves.
- 4 springs for air compressor M.P. suction valves.
- 4 — " for do. M.P. delivery valves.
- 3 — " for do. L.P. suction valves.
- 3 — " for do. L.P. delivery valves.

Spare air compressor.

- 7 H.P. piston packing rings.
- 3 L.P. do.
- 1 H.P. delivery valve complete.
- 1 L.P. do.
- 1 spring for H.P. delivery valve.
- 1 — " for L.P. do.
- 1 — " for the safety valve.

A quantity of assorted bolts and nuts and various sizes of
bar iron, pipes, flanges, unions and fittings.

A.C.F.