

REPORT ON MACHINERY.

No. 1239

Received at London Office

FRI. NOV. 28. 1913

Their 25 Nov. 1913 When handed in at Local Office

10 Port of Stockholm

held at Sickla, Stockholm District Date, First Survey 9 May 1912 Last Survey 19 Nov. 1913

Machinery of the Twin Screw motorvessel "Sebastian" (Number of Visits 27) Gross 3300 Tons

Built at Dundee By whom built Caledon Shipbuilding Engineers - When built 1913

Stockholm By whom made Aktiebolaget Diesels Motorer when made 1913

By whom made when made

Power 800 Owners Messrs Lane & Mac Andrew Port belonging to London

as per Section 28 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

Description of Engines 6 Cylinder two stroke cycle Diesel Engine No. of Cylinders 6 No. of Cranks 6

450 Length of Stroke 540 Revs. per minute 165 Dia. of Screw shaft as per rule Material of screw shaft as fitted

Is the after end of the liner made water tight

If the liner is in more than one length are the joints burned If the liner does not fit tightly at the part

in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive If two

the shaft lapped or protected between the liners Length of stern bush

per rule Dia. of Crank shaft journals as per rule 273 Dia. of Crank pin 285 Size of Crank webs 380 Dia. of thrust shaft under as fitted 285

of screw Pitch of Screw No. of Blades State whether moveable Total surface

Diameter of ditto Stroke Can one be overhauled while the other is at work

Diameter of ditto 150 Stroke 250 Can one be overhauled while the other is at work Yes

SIZES OF PUMPS No. and size of Suctions connected to both Bilge and Donkey pumps

In Holds, &c.

Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine room & size

Are the roses in Engine room always accessible Are the sluices on Engine room bulkheads always accessible

Are they Valves or Cocks

Are the Discharge Pipes above or below the deep water line

Are the Blow Off Cocks fitted with a spigot and brass covering plate

How are they protected

Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges

of completion of fitting of Sea Connections of Stern Tube Screw shaft and Propeller

Tunnel watertight Is it fitted with a watertight door worked from

(Letter for record) Manufacturers of Steel

Place of Boilers Is Forced Draft fitted No. and Description of Boilers

Tested by hydraulic pressure to Date of test No. of Certificate

worked separately Area of fire grate in each boiler No. and Description of Safety Valves to

Area of each valve Pressure to which they are adjusted Are they fitted with easing gear

Mean dia. of boilers Length Material of shell plates

Are the shell plates welded or flanged Descrip. of riveting: cir. seams

Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps

Working pressure of shell by rules Size of manhole in shell

No. and Description of Furnaces in each boiler Material Outside diameter

Thickness of plates crown Description of longitudinal joint No. of strengthening rings

Combustion chamber plates: Material Thickness: Sides Back Top Bottom

If stays are fitted with nuts or riveted heads Working pressure by rules

Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space:

Pitch of stays How are stays secured Working pressure by rules Material of stays

Area supported by each stay Working pressure by rules Material of Front plates at bottom

Thickness Greatest pitch of stays Working pressure of plate by rules

Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays

Working pressures by rules Girders to Chamber tops: Material Depth and

Length as per rule Distance apart Number and pitch of stays in each

Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked

Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

Distance between rings Working pressure by rules End plates: Thickness How stayed

Area of safety valves to superheater Are they fitted with easing gear

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building
During progress of work in shops -- 9x10, 9, 13x29, 12 1912, 14, 15, 17, 19, 11, 9x10, 12, 6.7.8x9, 12.13.15x17, 11, 8x19 1913
During erection on board vessel -- 9, 10, 11, 12 1913
Total No. of visits in shop 27

Is the approved plan of main boiler forwarded

(See annexed sheet)

Dates of Examination of principal parts
Cylinders Slides Covers Pistons
Connecting rods Crank shaft Thrust shaft Tunnel shafts Screw shaft
Stern tube Steam pipes tested Engine and boiler seatings Engines holding down
Completion of pumping arrangements Boilers fixed Engines tried under steam
Main boiler safety valves adjusted Thickness of adjusting washers
Material of Crank shaft Identification Mark on Do. Material of Thrust shaft Identification Mark on Do.
Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts Identification Mark on Do.
Material of Steam Pipes Test pressure

Is an installation fitted for burning oil fuel Is the flash point of the oil to be used over 150°F.
Have the requirements of Section 49 of the Rules been complied with
Is this machinery duplicate of a previous case If so, state name of vessel

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

I am of opinion, that this engine is of superior material and workmanship, and as it has been designed and constructed under special survey, I have respectfully to submit, that it should be eligible to be classed **LMC**, as soon as both motor and boiler have been fitted in ship to the satisfaction of the Society's local committee.

It is respectfully submitted, that the first entry fee be charged on completion of the engine in ship.

The amount of Entry Fee ... £ : : When applied for, 24 Nov. 1913.
Special ... £ 34 : 14 : :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ 9 : 19 : 6
Total £ 44 : 13 : 6

Committee's Minute

FRI. MAR. 6. 1914

Assigned

Attest
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Continuation of Report No. 1239 dated 25th Nov. 1913 on the Diesel Engine for Messrs Caledon Shipbuilding & Engineering Co. vessel no. 232 "Sebastian".

Examination of principal parts.

1. 12 1912, 15, 17, 19, 11x12 1913

11, 11x13 1913

air cylinders: 15x19, 11x13 1913

bolts: 11, 12x13 1913

rods: 17 1912 (by Mr. Bulow) 9, 29 1912, 11x13 1913

connecting rods: 17 1912 (---) 9, 29 1912, 7x9, 11x13 1913

shaft: 17 1912 (---) 15, 11x12 1913. Spare crank sh. 29 1912 (by Mr. Jorgensen) 9 1913.

shaft: 9x10, 13 1912, 15x11 1913

valves: 6x12 1913

holding down bolts: The present bolts are being retained here for future power trials and new set is being made and fitted at Dundee.

tried: 6.7.8x9 1913

material of crank shaft: Siemens Martin Steel

identification marks on d.o. shaft:

Long's No. 408	Middle Long's No. 409	After most shaft: 15.2.13 A	Long's No. 410	Spare shaft: 15.2.13 A	Long's No. 425
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thrust shaft: I.M.S. Identification mark:

Long's No. 370

signs of the crank & thrust shafts of this type and size of Diesel Engine have been submitted and approved, see Secretary's letters E. 4.7.1911, 12.1.1912 & 2.7.1913

crank shafts, the spare crankshaft, the piston rods, connecting rods, engine columns, guide bars and cylinder cover bolts have all been manufactured at the Steel works. The material of these forgings has been tested by the Society's Surveyor & Gothenburg and found good. The thrust shaft has been manufactured at hammer Steelworks and inspected and tested by the undersigned and found good. The forgings have been examined by me when being rough turned and finished and found good and sound.

The working cylinders, of cast iron, have been examined inside and outside and found good. They have all been tested with hydraulic pressure to 1176 lbs. per sq. in. or twice the working pressure of 40 atm. and found tight. They have been marked on upper flanges. TEST 1176 LBS (date of test) A. Their water jackets have all been tested to 50 lbs. and found tight. The cylinder covers have also been tested to 1176 lbs. and found tight. The water jackets to 50 lbs. and found tight.

The average air cylinders have all been tested to 142 lbs. per sq. in. (= 10 kg. per sq. cm. or 14.2 atmospheres) and found tight. They have been marked on top of valve. HYDR. TEST 142 lbs. (date of test) A. I. The silencer, which is not correct here, is to be made and tested in Gr. Britain.

The compressors, two stage, 4 in number, have been tested with hydr. pressure to 140 atm. I.P. cyl. to 24 atm. and water jackets to 3.6 atm. (= 51 lbs. per sq. in.)

The designs of the injection air bottles, 3 in number, of which 2 spare, have been submitted and approved, see Secy's letter E. 1.1.1913. They have been manufactured at the Avesta Steel Works of S.M. Steel, tested by me and plate the material found to agree with the Rules, laid down in Secy's letter E. 5.6.1912. The seams are welded by the ordinary "water gas" method. They have been tested with hydraulic pressure to 1140 atm. and stamped.

Injection air
bottle:

Lloyd's Test 140 Atm.
Working Pr. 70 Atm.
No. 485 Skm. 9.4.13 A.I.

The two spare
injection air
bottles:

Lloyd's Test 140 at
Working Pr. 70
No. 486 (487) 23.8.13

The safety valves on these three bottles have been adjusted to 73 Atm. in excess of the working pressure, and have been stamped R. The designs of the starting air bottles (one and one spare-) have been and approved, see Secr. letter E. 5.6.12. They have been manufactured the same steel works and in the same manner as the injection air bottles found to agree with the Rules, above mentioned. These bottles have been tested with hydr. pressure to 26 Atm. and found tight and sound. 929
been stamped: Lloyd's Test 26 Atm.
Working Pr. 13 Atm.
No. 488 (489) 11.3.13 A.I. Their safety valves have been adjusted to 13.3 Atm. and been afterwards stamped R.

All fuel valves, fuel pumps and the injection air pipes have been tested by hydraulic pressure to 140 Atm. and found good and sound. The and the four circulating water cooling pumps have been tested by hydr. to 50 lbs. and found tight & sound.

The engine has been tried in shop for several days and under full load for 24 consecutive hours and was then found to give an effect of 165 Revolutions of 810 Brake Horsepower, the corresponding Horsepower being about 1150 H.P.

Spare gear: The spare gear, stated on the List, sent to the London with my letter of the 17th Febr. 1913, and approved in Secr. letter of the 27th are contracted for the set of both Diesel Engines for the "Sebastian". An extra spare gear, delivered outside the agreement, is here appended. Spare Gear also comprises the auxiliary motor compressor, as on in my report no. 1209. The design of the injection air bottles, for this auxiliary compressor has been submitted and approved in Secr. letter E. 22.10.1913. They have been manufactured at the same works from seamless steel pipes, tested by me and found to agree with the Rule. Their ends are shrunk or compressed together, and thus, there is no separately welded bottoms. They have all been tested with hydr. pressure to 140 Atm. and found tight and sound and have been stamped.

Lloyd's Test 140 Atm.
Working Pr. 70 Atm.
No. 506 (507, 508) Skm. 19.11.13 A.I.

Their safety valves have been adjusted to 73 Atm. and been stamped R.

The Society's Rules with regard to the details of construction, accessibility etc. have been adhered to, so far as concerns the engine itself. The remaining requirements of the Rules will have to be attended to at the fitting of the engine in ship.

Attest



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Foundation