

REPORT ON MACHINERY.

No. 1209
THU. SEP. 11. 1913

Received at London Office

Report 8 Sept 1913 When handed in at Local Office 10 Port of Stockholm
held at Sickla, Stockholm District Date, First Survey 31st March 1911 Last Survey 2nd Sept. 1913
machinery of the twin screw motor vessel "Sebastian" (Number of Voids 52) Gross 3300
Built at Gundee By whom built Caledon Shipbuilding & Engineering Co. Ltd. When built 1913
Stockholm By whom made Aktiebolaget Diesels Motorer when made 1913
By whom made _____ when made _____
Power 800 Owners Messrs. Lanex Mac Andrew Port belonging to London

Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted _____
Description of Engines 6 Cyl. two stroke cycle Diesel Engines No. of Cylinders 6 No. of Cranks 6
450 mm Length of Stroke 540 mm Revs. per minute 165 Dia. of Screw shaft _____ Material of screw shaft _____
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 _____
Is the space charged with a plastic material insoluble in water and non-corrosive _____ If two _____
Is the shaft lapped or protected between the liners _____ Length of stern bush _____
Dia. of Crank shaft journals _____ as per rule 273 mm Dia. of Crank pin 285 mm Size of Crank webs 380 x 160 mm Dia. of thrust shaft under _____
Dia. 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 mm Stroke 250 mm Can one be overhauled while the other is at work Yes
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 _____
Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times _____
Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges _____
of Stern Tube _____ Screw shaft and Propeller _____
Is it fitted with a watertight door _____ worked from _____

Surface of Boilers _____ Is Forced Draft fitted _____ No. and Description of Boilers _____
Tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____
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 _____
Range of tensile strength _____ 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 _____ 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 _____
Greatest pitch of stays _____ Working pressure of plate by rules _____
Material of tube plates _____ Thickness: Front _____ Back _____ Mean pitch of stays _____
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 _____
Pitch of rivets _____ 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 _____

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. Description
 Made at By whom made When made Where fixed
 Working pressure tested by hydraulic pressure to Date of test No. of Certificate Fire grate area
 Valves No. of Safety Valves Area of each Pressure to which they are adjusted Date of adj.
 If fitted with easing gear If steam from main boilers can enter the donkey boiler Dia. of donkey boiler
 Material of shell plates Thickness Range of tensile strength Descrip. of riveting long. seams
 Dia. of rivet holes Whether punched or drilled Pitch of rivets Lap of plating Per centage of strength of
 Working pressure of shell by rules Thickness of shell crown plates Radius of do. No. of stays to do. Dia. of
 Diameter of furnace Top Bottom Length of furnace Thickness of furnace plates Description of joint
 Working pressure of furnace by rules Thickness of furnace crown plates Radius of do. Stayed
 Diameter of uptake Thickness of uptake plates Thickness of water tubes Dates of survey

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building
 During progress of work in shops -- 31, 6, 23, 17, 22, 31, 26, 8, 20, 28, 13, 1911, 2, 21, 22, 18, 24, 25, 27, 11, 22, 3, 10, 11, 12, 1912, 14, 23, 2, 31, 2, 21, 4, 2, 8, 15 (2 visits) 16 (4 visits) 17 (2 visits) 18 (2 visits)
 During section on board vessel -- 10, 11, 12, 1912, 14, 23, 2, 31, 2, 21, 4, 2, 8, 15 (2 visits) 16 (4 visits) 17 (2 visits) 18 (2 visits)
 Total No. of visits 52.

Is the approved plan of main boiler forwarded hereto

(See annexed sheet)

Dates of Examination of principal parts—Cylinders Slides Covers Pistons
 Connecting rods Crank shaft Thrust shaft Tunnel shafts Screw shaft Propeller
 Stern tube Steam pipes tested Engine and boiler seatings Engines holding down bolts
 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 Marks on Do.
 Material of Steam Pipes Test pressure

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 supervision of the Local Surveyor, and as it has been designed and constructed under supervision of the Local Surveyor, I have respectfully to submit, that it will be eligible to be classed as soon as it has been fitted in ship to the satisfaction of the Local Surveyor.

This is respectfully submitted, that the first entry fee be charged on completion of the fitting

The amount of Entry Fee .. £ : : When applied for,
 Special .. £ 34. 14. 6 5. 9. 18. 2.
 Donkey Boiler Fee .. £ : : When received,
 Travelling Expenses (if any) £ 19 : 8 : 6

Committee's Minute

FRI. MAR. - 6. 1914

Assigned

Engineer Surveyor to Lloyd's Register of British & Foreign

Continuation of Report No. 1209 dated 8 Sept. 1913. on the

Stockholm

essel engines for Messrs. Caledon Shipbuild. & Eng. Co.'s vessel no. 232 "Sebastian".

examination of principal parts:

less: 31, 1911, 21, 25, 4, 3, 7, 9, 5, 7, 10, 21, 22, 25, 1912, 20, 21, 22, 1913.

25, 3, 12, 1912, 20, 21, 22, 1913.

age air cylinders: 25, 22, 1913.

Pistons: 5, 16, 1911, 21, 25, 1912, 22, 1913.

25, 3, 12, 1913.

connecting rods: 31, 5, 16, 1911, 25, 29, 1912, 22, 1913.

shaft: 26, 20, 28, 13, 1911, 22, 25, 1912, 2, 3, 5, 6, 21, 1913.

shaft: 2, 18, 24, 27, 1912, 3, 21, 1913.

Seatings 21, 1912, 2, 21, 1913.

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

restried: 2, 3, 5, 6, 15, 18, 1913.

al of crank shaft: S.M. Steel, Ident. Mark on do.

Thrust shaft: S.M. Steel.

designs of the crank- and thrust shafts of this type and size of Diesel engines have been submitted and approved, see Secr. letters E. 4. 7. 1911, 12. 1. 1912, 2. 7. 1913.

two crank shafts and the thrust shaft have been manufactured at the Kockhwa Steelworks. The forgings have been inspected and tested by the undersigned and found to be in accordance with the requirements. The spare crank shaft, the piston rods, connecting rods, and the cylinder covers have all been manufactured at the Motala Steelworks. The material of these forgings has been tested by the Society's Surveyors at Gothenburg and found good. All forgings have been examined by me when being rough turned and found good and sound. A very slight lamination, detected in the front end journal of the fore crank shaft has been successfully chiselled out and the recess filled with a threaded plug about 1" in diam., as approved by the Superintendent and the undersigned.

The six working cylinders, of cast iron, have been examined in and out of the engine and found sound. They have all been tested with hydraulic pressure to 1176 lb. per sq. in. or double the working pressure of 40 atm. and found tight. They have been marked on upper flanges: Hydr. Test 1176 lbs. 5. 10. 12 A on cyl. no. 1, 2 & 5; Hydr. Test 1176 lbs. 22. 10. 12 A on cyl. no. 3 & 6; Hydr. Test 1176 lbs. 25. 10. 12 A on cyl. no. 4; Hydr. Test 1176 lbs. 19. 2. 13 A on cylinder. Their water jackets have all been tested to 50 lbs. and found tight. The cylinder covers have all been tested to 50 lbs. and found tight. The six scavenge air cylinders (in three castings) have all been tested to 10 kg. per sq. cm. and found tight. They have been marked on top of valve chests: Tr. 10 kg. 1102. 2. 13 A. The Silencer, which is not contracted, is to be made and tested in Great Britain. The air compressors, two stage, 4 in number, have been tested with hydr. pressure, the cylinders to 140 kg. per sq. cm. the L.P. cylinders to 24 kg. per sq. cm. and their water jackets to 36 kg. per sq. cm. (= 50 lbs. per sq. in.). The designs of the injection air bottles, 3 in number, of which two spare, have been submitted and approved (see Secr. letter E. 1. 1. 1913). They have been manufactured at the Avesta Steelworks of S.M. Steel, tested by me and found to be in accordance with the requirements.

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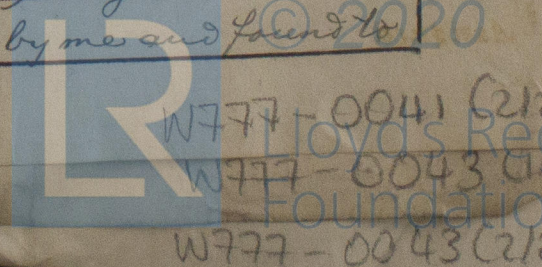
The designs of the injection air bottles, 3 in number, of which two spare, have been submitted and approved (see Secr. letter E. 1. 1. 1913). They have been manufactured at the Avesta Steelworks of S.M. Steel, tested by me and found to be in accordance with the requirements.

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agree with the Rule, laid down in Secr.' letter E. 5.6.1912. Their
welded by the ordinary "watergas" method, practised in this country
25 years or more, and found to be much superior in reliability to
blacksmiths' welding method. These bottles have been tested with
pressure to 140 Atmospheres and found tight and sound. They have been

Injection	Lloyd's Test	140 Atm.	The two ^{spare} injection air bottles:	Lloyd's Test
air bottle:	Working Pr.	70 Atm.		Working Pr.
	No. 480 Km. 9.4.13 A.I.			No. 481 (24.48)

The safety valves of these three bottles have been adjusted to 73 Atm.
in excess of the working pressure, and have been stamped **R**.

The design of the starting air bottles (one and one spare) has been
tested and approved, see Secr.' letter E. 5.6.12. They have been made
the Arctic Steel Works of S. M. Steel, tested by me and found to agree
the Rule, above mentioned. Their seams are also welded by the ordinary
gas method. These bottles have been tested with hydr. pr. to 26 Atm. and
tight and sound. They have been stamped: Lloyd's Test 26 Atm.
Their safety valves have been adjusted to Working Pr. 13 ---
13.3 Atm. and afterwards been stamped **R**. No. 483 (2 No. 484) 22 Aug. 1913 A

All fuel valves and the injection air pipes have been tested
pr. to 140 Atm. and found good and sound. One bilge pump and
culating water cooling pumps have been tested by hydr. pr. to 50 lbs. and found
and sound.

The engine has been tried in shop under full power for 48
hours under the close and continuous attendance of the undersigned
two Assistants, Mr. N. G. Nilsson and Mr. J. M. Ahlstrom, who have equalled
the "watches" of 8 hours each. The engine was then found to give an effect
at load and 165 revolutions of 805 Brake Horse Power with a fuel con-
of 221 Grammes per BHP. per Hour. The corresponding indicated Horsepower
aimed by me, was then 1150 HP.

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

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 2nd
month, are contracted for the set of both Diesel Engines for the "Pobas".
Some of these articles have been sent with the first motor, now
The remaining parts are to be sent with the starboard motor, which
delivered shortly. The spare gear also comprises a motor-compressor
by a separate 25 BHP. 2 cyl. Diesel Engine of the 4 stroke cycle (Cyl. diam. 165^{mm}
200^{mm}, no. of revolutions 550). This Engine has been tried under full spe-
presence and found to work well. A copy of the list of spare gear of
auxiliary is also appended.

A. Kaks.



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