

REPORT ON OIL ENGINE MACHINERY.

No. 5838

-9 SEP. 1924

Received at London Office

Date of writing Report 6th Sept 1924 When handed in at Local Office 6th Sept 1924 Port of Göteborg
 No. in Survey held at Göteborg Date, First Survey 5th June 1923 Last Survey 3rd September 1924
 Reg. Book. 66823 on the Single } Screw vessels "CITY OF SAN FRANCISCO" Tons { Gross 3694
Twin } Net 2594
Triple }
 Master ✓ Built at Göteborg By whom built Aktiebolaget Götavarken Yard No. 376 When built 1924
 Engines made at Göteborg By whom made Aktiebolaget Götavarken Engine No. 533 When made 1924
 Donkey Boiler made at Annan By whom made Cochran & Co. Annan Ltd Boiler No. 9269 When made 1924
 Brake Horse Power 629 New Rule Owners Pacific Mail Steam Ship Co. INC. Port belonging to Panama
 Nom. Horse Power as per Rule 480 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

IL ENGINES, &c.—Type of Engines Two Diesel Oil Engines 2 or 4 stroke cycle 4 Single or double acting Single
 Maximum pressure in cylinders 36.0 kg/cm² No. of cylinders 2x6 = 12 No. of cranks 2x6 = 12 Diameter of cylinders 590 mm [23 3/16"]
 Length of stroke 900 mm [35 1/16"] Revolutions per minute 130 Means of ignition Diesel system 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) 788 mm
 Distance between centres of main bearings 1180 mm Is a flywheel fitted Yes Diameter of crank shaft journals as per Rule 352 mm
as fitted 365 mm Diameter of crank pins 365 mm Breadth of crank webs as per Rule 780 mm
as fitted 780 mm Thickness of ditto as per Rule 220 mm
as fitted 225 mm Diameter of flywheel shaft as per Rule 352 mm
as fitted 365 mm Diameter of tunnel shafts as per Rule 237 mm
as fitted 240 mm Diameter of thrust shaft as per Rule 249 mm
as fitted 295 mm Diameter of screw shaft as per Rule 260 mm
as fitted 260 mm 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 One length
 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 ✓ If without liners, is the shaft arranged to run in oil ✓
 Type of outer gland fitted to stern tube ✓ Length of stern bush 1350 mm Diameter of propeller 3250 mm
 Pitch of propeller 3100 mm No. of blades 4 state whether moveable No Total surface 2x3.2 = 6.4 square feet
 Method of reversing Reversing gear Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Thickness of cylinder liners 37.5-48 mm
 Are the cylinders fitted with safety valves Yes Means of lubrication Mechanical Are the exhaust pipes and silencers water cooled or lagged with
 non-conducting material Both If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine The
exhaust is led to the funnel No. of cooling water pumps 2 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 2 How driven By electric motors
 Sizes of pumps Diam 165 mm Stroke 230 mm No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room Two 2 1/2" One 3" well
 and in holds, etc. Two 3" from each hold No. of ballast pumps 2 How driven Electric Sizes of pumps 150 & 24 mm
 The 150 mm ballast pump is also connected to the main bilge line ✓ State size 6" Is a separate auxiliary pump suction fitted in
 Is the ballast pump fitted with a direct suction from the engine room bilges Yes
 Engine Room and size Yes, two 3 1/4" 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 fitted 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 Yes Is it fitted with a watertight door Yes
 worked from Upper engine room bulkhead 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 No. of stages 3 Diameters 136, 520 & 580 mm Stroke 300 mm Driven by Main engines
 No. of auxiliary air compressors 3 No. of stages 3 Diameters 318, 285 & 78 mm Stroke 220 mm Driven by Auxil. engines
 No. of small auxiliary air compressors 1 No. of stages 2 Diameters 34 & 106 mm Stroke 80 mm Driven by Steam engine
 No. of scavenging air pumps ✓ Diameter ✓ Stroke ✓ Driven by ✓
 Diameter of auxiliary Diesel Engine crank shafts as per Rule 162 mm
as fitted 162 mm Are the air compressors and their coolers made so as to be easy of access Yes

AIR RECEIVERS:—No. of high pressure air receivers 8 Internal diameter 450, 358 & 190 mm Cubic capacity of each 350, 175 & 33 litres
 material Steel Seamless, lap welded or riveted longitudinal joint Seamless or lap welded Range of tensile strength 21.6-26 Tons/0"
 thickness 25, 21 & 15 mm working pressure by Rules 65 kg/cm² No. of starting air receivers 2 Internal diameter 1800 mm
 Total cubic capacity 400 cub. feet [11.3 m³] Material Steel Seamless, lap welded or riveted longitudinal joint Riveted
 Range of tensile strength 44-50 kg/cm² thickness 25 mm Working pressure by rules 26.5 kg/cm² 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 By means of caustic soda and steam Is there a drain arrangement fitted at the lowest part of each receiver Yes

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					INJECTION AIR RECEIVERS:
" " COVERS	6/6/23, 4.18/9/23.	1.0 kg/cm ²	6.0 kg/cm ²	B	Main engine ordinary
" " JACKETS	13.14/9/23, 12/10/23	"	"	B	Nº 97 & 98. B
" " PISTON WATER PASSAGES	31/8/23	"	"	B	LLOYDS TEST 130 KG
MAIN COMPRESSORS—1st STAGE	28/6/23, 28/9/23	65 kg/cm ²	130 kg/cm ²	B	W.P. 65 KG.
AIR COOLING PIPES & SPACES	6/6/23, 25/6/23, 31/6/23.	1.0 "	6.0 "	B	G.A. 30.6.24.
2nd COOLING WATER SPACES	18/6/23, 2/10/23.	5.20 "	10 & 40 "	B	Main engine spare
3rd AIR COOLERS	23/4/24	25 "	39 "	B	Nº 100 & 101 B
AIR RECEIVERS—STARTING	30/6/24	65 "	130 "	B	LLOYDS TEST 130 KG
" INJECTION	28/6/23, 15/9/23, 13/6/24, 30/6/24, 23/7/24	25 & 65 kg/cm ²	As per Rule	B	W.P. 65 KG.
AIR PIPES	13/6/23, 16/7/24	65 "	"	B	G.A. 30.6.24.
FUEL PIPES	19/6/23, 25/7/23.	65 "	10 & 100 kg/cm ²	B	Due engine ordinary
FUEL PUMPS				B	Nº 4971
SILENCER				B	LLOYDS TEST 1990
" WATER JACKET	11/10/23, 26/10/23, 29/10/23	1.0 kg/cm ²	4.0 kg/cm ²	B	W.P. 955 LBS.
SEPARATE FUEL TANKS	23/5/24	✓	1.0 "	B	HQ. 28.12.23.

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

Receivers *Yes*

Separate Tanks *No.*

SPARE GEAR For the main engines:—

1 cylinder cover complete with valves, valve seats and springs etc and in addition 11 complete sets of discharge valves and 3 extra valves with spindles for same, 1 air inlet valve complete and 1 extra valve with spindle for same, 5 complete sets of fuel valves and 3 extra valves and 6 seats for same and 1 complete set of starting air valve.

1 piston complete with all piston rings and in addition 3 sets of piston rings, To be continued.

The foregoing is a correct description,

Cress & Veder

Manufacturer.

Dates of Survey while building	During progress of work in shops—	1923. June 5, 6, 7, 19. July 18, 25, 28, 31. Aug 7, 8, 18, 22, 24, 28, 31. Sept 1, 12, 13, 14, 15, 18, 28. Oct 2, 4, 8, 8, 11, 26, 29. Nov 9, 16.
	During erection on board vessel—	1924. Jan 2. March 13, 20, 21, 27. April 10, 12, 14, 15, 16, 23, 29. May 14. June 5, 13, 30. July 8, 16, 23.
	Total No. of visits	72
Dates of Examination of principal parts—Cylinders	4/9/23, 2/10/24	Covers 6/6/23, 18/9/23
		Pistons 31/8/23
		Rods 24/8/23
		Connecting rods 24/8/23
Crank shaft	✓	Thrust shaft 5/6/24
		Tunnel shafts 5/6/24, 8/7/24
		Screw shaft ✓
		Propeller 7/4/24
		Stern tube 7/4/24
		Engine seatings 3/1/24
Engines holding down bolts	13/3/24	Completion of pumping arrangements 32/8/24
		Engines tried under working conditions 30/8/24
Completion of fitting sea connections	30/4/24	Stern tube 30/4/24
		Screw shaft and propeller 2/5/24
Material of crank shafts	Steel	Identification Mark on Do. LLOYDS CRH CRW 630, 631 12, 23 & 24.
		Material of thrust shaft Steel
		Identification Mark on Do. LLOYDS Nº 11777, 11771 G.A. 5.6.24.
Material of tunnel shafts	Steel	Identification Marks on Do. See below
		Material of screw shafts Steel
		Identification Marks on Do. LLOYDS SP Nº 6974 11.1.24 12/15. J.J.P. J.-J.
Is the flash point of the oil to be used over 150° F.	<i>Yes</i>	
Is this machinery duplicate of a previous case	<i>Yes</i>	If so, state name of vessel <i>Homland, Thana, Nualja.</i>

General Remarks

(State quality of workmanship, opinions as to class, &c. Identification marks:—

LLOYDS	LLOYDS	LLOYDS
Nº 11779	Nº 11775	Nº 5047
G.A. 8.7.24.	G.A. 5.6.24	G.A. 8.7.24

LLOYDS	LLOYDS	LLOYDS
Nº 5046	Nº 11774	Nº 5048
G.A. 8.7.24	G.A. 5.6.24	G.A. 8.7.24.

LLOYDS	LLOYDS
Nº 1224, 1228	Nº 1223
G.A. 16.4.24.	G.A. 10.4.24

LLOYDS
Nº 6970
4.1.24
J.J.P.

The main and auxiliary engines of this vessel have been built under special survey and all the requirements of the Rules have been complied with.

To be continued.

The machinery of this vessel is worthy in our opinion to be classed in the Register Book of this Society with the notation of *+LHC 9.24* being in a good and safe working condition.

Working pressure of Donkey boiler 100 lbs/sq.

The amount of Entry Fee	£K	91:—	When applied for,
Special	£K	1770:86	When received,
Donkey Boiler Fee	£	:	:
Travelling Expenses (if any)	£	:	22.10.24

W. Bulow
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI, 19 SEP 1924

Assigned

+ Lmb. 9.24. C.L.
oil engines



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Lloyd's Register Foundation

the Machinery of "S CITY OF SAN FRANCISCO." N^o 66823 in Register Book.

The workmanship is good and the material fulfils the requirements of the Rules and approved plans. Please see Secretary's letters initialed E of July 1923, 16th, 19th July, 17th August and 21 September 1923, 2nd Febr. 15th March & 12 Aug. 1924 and Gothenburg letters initialed E of the 20th June 7th & 11th July, 11th Aug and 11th September 1923 and 26th Jan. 1924.

The main engines were tested under full working power on a seven hours trial trip and proved to work satisfactorily both ahead and astern. The auxiliary engines were tested under full working power and found in good working conditions.

The auxiliary machinery consists of:

Three two cylinders, 4-stroke, single acting Diesel Oil Engines of cylind. diam 310^{mm} and stroke 350^{mm} each working a dynamo of 66 KW, 220 volts and 300 amperes, which have to supply the electric current motive power to the following:-

- One 15 HP shunt wound motor working the ballast and bilge pump.
- One 18 HP " " " " " pump.
- Two 7.5 HP " " motors " " bilge & sanitary pumps.
- Two 35 HP " " " " " cooling water and the lubrication pumps.
- Two 6 HP serie " " " " " main engine turning gear.
- One 15 HP shunt " motor " " oil pump to the daily service tanks.
- One 48 HP compound " " " " " windlass.
- Two 32 HP " " motors " " winches.
- One 10.5 HP shunt " motor " " steering engine.

Also electric current for the lighting purpose with the voltage reduced from 220 volts to 110 volts after having passed the transformer.

Two 120 tons rotary pumps for the cooling water,

Two 40 " " " " " forced lubrication,

One 50 " " pump " " daily service oil tanks,

One 150 " " " " " ballast purpose,

One 40 " centrifugal " " " "

Two 2x20" plunger pumps for bilge discharging and sanitary purpose. These pumps have two plungers each Diam 6 1/2", Stroke 9".

The vessel is fitted with wireless telegraphy of Telefunken system.

Spare gear continued:

4 connecting rod top-end bolts and nuts and 4 halves of bearings,

4 " " bottom- " " " " " 3 upper halves " " ,

8 main bearing studs and nuts and 2 halves of main bearings,

1 set of coupling bolts for the crank shaft, 1 set of coupling bolts for the intermediate shafts,

1 set of piston rings for one main engine compressor,

1 complete set of all working parts of a fuel pump, 1 complete set of cylinder

cover studs and nuts, 1 cylinder liner, 1 complete set of all springs for one

engine and compressor, 1 cam roller with pin of each size, 1 cooling-coil

for main air compressor, 1 set of valves with seats and springs for the

main engine compressor, 1 propeller shaft with nut, 2 cast iron propellers,

To be continued.

Gothenburg

Continuation of Report No. 5838 dated 6th September 1924 on the

machinery of the "CITY OF SAN FRANCISCO" No. 66823 in Register Book.

A quantity of bolts and nuts and different lengths of pipes with unions and flanges suitable for each.

For the auxiliary machinery:

4 complete sets of discharge valves with springs etc. which can be used as air suction valves and 2 extra valves for same, 2 complete sets of fuel valves with springs etc and 2 extra valves for same, 1 starting air valve, 2 sets of piston rings for one piston, 2 halves of connecting rod top end bearings, 2 connecting rod bottom end bolts and nuts and 2 halves of bearings for the same, 1 set of valves for a compressor, 1 set of piston rings for one compressor, 1 set of cylinder studs and nuts, 1 set of working parts for one fuel pump, 1 safety valve spring of each size, 1 cooling coil for the aux. engine compressor, 1 set of valves with seats for the ludge pump, 1 set of valves with seats for the sanitary pumps, A quantity of bolts and nuts and different lengths of pipes with unions and flanges suitable for each.

For the donkey boiler:

1 safety valve spring, 1 set of feed check valves, 1 set of feed pump valves.

Lgt.



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