...c. 4b.

REPORT ON OIL ENGINE MACHINERY.

No. 27299.

...of writing Report 26 Feb 1927 When handed in at Local Office 26 Feb 1927 Port of New York. Received at London Office 12 MAR 1927

...in Survey held at New York ...Book. Date, First Survey 30 Sept 1926 Last Survey 25 Feb 1927 Number of Visits 9

...68 on the ~~Single~~ Twin ~~Triple~~ Screw vessels M/V SAGAMI ex SECUNDUS Tons Gross 4453 Net 2749

...er Built at Hamburg By whom built Blohm + Voss Yard No. 210 When built 1913

...nes made at Hamburg By whom made Blohm + Voss. Engine No. When made 1913

...ey Boilers made at d° By whom made d° Boiler No. When made 1913

...e Horse Power 2700 Owners SAGAMI NAVIGATION Co INC. Port belonging to New York

...Horse Power as per Rule 790 Is Refrigerating Machinery fitted for cargo purposes no. Is Electric Light fitted Yes

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...ENGINES, &c.—Type of Engines Diesel 2 or 4 stroke cycle 2 Single or double acting single

...um pressure in cylinders 500 lbs No. of cylinders 4 each engine No. of cranks 4 Diameter of cylinders 23.8" 23 13/16

...of stroke 36.2" 36 3/16 Revolutions per minute 110 Means of ignition compression Kind of fuel used Fuel oil

...a bearing between each crank yes Span of bearings (Page 92, Section 2, par. 7 of Rules) 37.4" ✓

...e between centres of main bearings 59.5" Is a flywheel fitted yes ✓ Diameter of crank shaft journals as per Rule 14.7" as fitted 14.8" with 3.2 hole

...er of crank pins 14.8" with 3.2" hole ✓ Breadth of crank webs as per Rule 27.7" as fitted 29.5" Thickness of ditto as per Rule 11.7" as fitted 13" ...

...er of flywheel shaft as per Rule as fitted on crank shaft Diameter of tunnel shaft as per Rule 11.1" as fitted 11.8" ✓ Diameter of thrust shaft as per Rule 11.7" as fitted 13" ✓

...r of screw shaft as per Rule 12.65 as fitted 13 3/4" ✓ Is the screw shaft fitted with a continuous liner the whole length of the stern tube no liners ✓

...fter end of the liner made watertight in the propeller boss If the liner is in more than one length are the joints burned

...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

...liners are fitted, is the shaft lapped or protected between the liners If without liners, is the shaft arranged to run in oil yes.

...outer gland fitted to stern tube Blohm + Voss ✓ Length of stern bush 54" ✓ Diameter of propeller 12'-6" ✓

...f propeller 11'-9" mean No. of blades 4 state whether moveable yes Total surface square feet

...of reversing Air ✓ Is a governor or other arrangement fitted to prevent racing of the engine ~~when declutched~~ yes. ✓ Thickness of cylinder liners 2"

...cylinders fitted with safety valves yes. Means of lubrication forced Are the exhaust pipes and silencers water cooled or lagged with

...ducting 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

Led up stack. No. of cooling water pumps 3 each engine 2 independent 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 1 each engine Diameter of ditto 4 3/4" Stroke 25.6"

...be overhauled while the other is at work yes No. of auxiliary pumps connected to the main bilge lines 2 ballast How driven electrical drive

...pumps (1) 8.67" × 10" (1) Centrifugal 12.8" impeller No. and sizes of suctions connected to both main bilge pumps and auxiliary bilge pumps:—In engine room 4 - 3 1/2"

...olds, etc. 2 - 3 1/2" each hold. ✓ No. of ballast pumps 2 How driven electric Sizes of pumps (1) 8.67" × 10" 1 Centrifugal 12.8" Impeller

...llast pump fitted with a direct suction from the engine room bilges yes State size 4" Is a separate auxiliary pump suction fitted in

...Room and size yes 4". ✓ Are all the bilge suction pipes fitted with roses yes Are the roses in Engine Room always accessible yes

...luices on Engine Room bulkheads always accessible Are all connections with the sea direct on the skin of the ship yes.

...valves or cocks valves + cocks Are they fixed sufficiently high on the ship's side to be seen without lifting the floor plates yes.

...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.

...pes, 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

...ation between the sea and the bilges yes Is the screw shaft tunnel watertight yes Is it fitted with a watertight door yes.

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

...in air compressors 1 each engine No. of stages 3 Diameters 5"-19.7"-22.2" Stroke 15.75" Driven by crankshaft

...xiliary air compressors 2 Reavell type No. of stages 3 Diameters 4"-8"-(2) 6 1/2" Stroke 6" Driven by Aux. engines

...all auxiliary air compressors 1 No. of stages 2 Diameters 1.6"-4.72" Stroke 2" Driven by electric drive

...venging air pumps 2 each engine Diameter 33.5" Stroke 25.6" Driven by pump levers.

...of auxiliary Diesel Engine crank shafts as per Rule 6.9 as fitted 6.9" Are the air compressors and their coolers made so as to be easy of access yes.

A new Generator set fitted on the port side 2nd... replaces one of the old ones. New set 140 KW @ 220 V.

...RECEIVERS:—No. of high pressure air receivers 4 Internal diameter 2 @ 15" 2 @ 10" Cubic capacity of each 7 cb ft 3.5 "

...steel Seamless, lap welded or riveted longitudinal joint seamless Range of tensile strength

...5/8" + 1/2" working pressure by Rules 1000 lb. No. of starting air receivers 3 2 Internal diameter 17 3/4

...capacity 850 cb. ft. Material steel Seamless, lap welded or riveted longitudinal joint seamless

...ensile strength thickness 5/8 Working pressure by rules 950. Is each receiver, which can be isolated,

...safety valve as per Rule yes Can the internal surfaces of the receivers be examined yes. What means are provided for cleaning their

...ces Removable heads 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					
" " Covers					
" " Jackets					
" Piston Water Passages					
Main Compressors—1st Stage					
" 2nd "					
" 3rd "					
Air Receivers-Starting					
" Injection					
Air Pipes					
Fuel Pipes					
Fuel Pumps					
Silencer					
" Water Jacket					
Separate Fuel Tanks					

PLANS. Are approved plans forwarded herewith for shafting yes Receivers no Separate Tanks ✓
(If not, state date of approval)

SPARE GEAR 1 cylinder cover with all valves complete, + 1 complete set of valves for one cylinder, 3 spacer covers (welded) 3 pistons (welded) complete 1 set skew wheels, sufficient bolts + nuts, connecting rod top end bolts + nuts + brasses, one connecting rod bottom end brass with bolts + nuts, 2 main bearing bolts + 1 set of bolts for crank shaft coupling, 1 set of shaft coupling bolts. 1 Crank shaft section, 3 cylinders, 2 pa[illegible] blades + many other items in excess of Rules. Spares for Main Compressor + fore Auxiliary en[illegible] equal to or in excess of Rules.

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building { During progress of work in shops- - / During erection on board vessel- - - / Total No. of visits } 1926- Sept. 30. Oct. 1. 19. 22. Nov. 1. 10 - 1927- Jan. 28. Feb. 12. 21. 25.

Dates of Examination of principal parts—Cylinders 19-22/10/26 Covers 19-22/10/26 Pistons 19-22/10/26 Rods 19/10/26 Connecting rods 1/11/26
Crank shaft S 1/11/26 28/1/27 Thrust shaft 10/11/26 Tunnel shafts 1/10/26 Screw shaft 1/10/26 Propeller 1/10/26 Stern tube 1/10/26 Engine seatings 21/2/27

Engines holding down bolts 21/2/27 Completion of pumping arrangements 21/2/27 Engines tried under working conditions 12/2/27

Completion of fitting sea connections 30/9/26. Stern tube 1/10/26 Screw shaft and propeller ✓

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. ✓

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

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.

Please see attached sheet.

The amount of Entry Fee ...	£ Included	When applied for,	
Special	£ in		19
Donkey Boiler Fee ...	£ Hull	When received,	
Travelling Expenses (if any)	£ Fee.		19

Committee's Minute NEW YORK MAR - 2 1927

Assigned LMC.MS. 2-27 subject te. oil engine

John S. Heck.
Engineer Surveyor to Lloyd's Register of Shipping

TUES. 29 NOV 1927

Certificate (if required) to be sent to New York.

(The Surveyors are requested not to write on or below the space for Committee's Minute.)

New York Continuation of Report No. 27299 dated 26 Feb 1927 on the

12MAR.327.

M. V. "SAGAMI"

[illegible]se engines have not been built under Special Survey but they have been completely opened up [illegible] examined. They comply with the Rules and the workmanship and material are good.

[illegible] following however is respectfully submitted for the Committee's consideration:-

[illegible]RICATING SYSTEM.

[illegible] port engine crankshaft has given considerable trouble owing to the bearings heating. This [illegible]my opinion was due to contamination of the lubricating oil. The engine is an early design with [illegible]n crank case, and the design of the cylinder heads makes it difficult to keep the cooling water [illegible]nts tight. As a consequence, the salt water leakage from cylinder jackets, the fresh water [illegible]kage from pistons and the burnt oil, etc., from cylinders fall into the bottom of the bed plate [illegible] dilute the lubricating oil.

Owners have taken special care to make the joints as tight as possible and have put in two centri[illegible]al machines for purifying the oil. The crank shafts ran successfully for 8 hours at sea at 110 [illegible].M., and in my opinion, they are now in safe working condition and will run provided the crew pay [illegible]ention to keep the joints tight and to changing the lubricating oils.

[illegible]LING SYSTEM.

[illegible] cylinders and pistons are cooled by pumps worked from the main engines. Independent pumps are [illegible]vided for use when the main engines are stopped but these are electrically driven. The steering [illegible]r is also electrical and therefore if the auxiliaries fail it becomes necessary to stop the main [illegible]ines which leaves the cooling water stopped. It will therefore be necessary that in narrow waters [illegible]h auxiliaries be kept running. In my opinion, this can be considered safe but it will be necess[illegible] to see that both auxiliaries are kept in good condition. This can only be done by thoroughly [illegible]rhauling them after each voyage.

[illegible]TONS AND CYLINDER HEADS.

[illegible]n the survey commenced there were ample spare parts, but difficulty has been experienced with the [illegible]cking of piston crowns and cylinder heads. The cylinder head is in two parts, the lower part only [illegible]ng water cooled. The cracking in my opinion, is in some part due to the cooling system as noted [illegible]ve.

[illegible] Owners desired to try acetylene welding the pistons and heads and as a result the position is [illegible] as follows:-

	PORT ENGINE	STARBOARD ENGINE
No. 1 cylinder (aft)	Welded piston	Welded piston
No. 2 cylinder	Welded piston, welded spacer head,	
No. 4 cylinder (forward)	Welded piston.	Welded piston.

[illegible]ere are three spare pistons, and three spare spacer heads on board, all welded. These welded [illegible]stons have been tested to 1000 pounds and found good, and four of them have been examined after the [illegible]hours trial and found still good.

[illegible] my opinion, these welded pistons and heads are in safe working condition at present, but they [illegible]ould be again examined upon the vessel's return from her present voyage or in three months time [illegible]ichever is sooner.

[illegible]XILIARIES.

[illegible]o Diesel auxiliary motor generators only are provided for power purposes. To heave up the [illegible]chor, or to work cargo, or to approach port, it is necessary to have both auxiliaries running. [illegible] will therefore be necessary to maintain the auxiliaries in a good state of efficiency.

[illegible]NERAL.

[illegible] my opinion, these engines are now in good and safe working condition and eligible to receive [illegible]e notation of L.M.C. M.S. 2.27, D.B.S. 10.26 and T.S. (O.C.) 10.26, subject to annual survey of [illegible]e water tube donkey boiler and subject to the welded pistons and cylinder head being again ex[illegible]ined on the vessel's return from her present voyage, or in three months time whichever is sooner.

[illegible] view however of the circumstances stated above, this opinion is respectfully submitted for the [illegible]cial consideration of the Committee.

John S. Heck.