

Rpt. 4b

## REPORT ON OIL ENGINE MACHINERY.

No. 7353.

25 OCT 1926

Received at London Office  
 Date of writing Report 9/10 1926 When handed in at Local Office 19 Port of Copenhagen  
 No. in Survey held at Copenhagen & Nakskov Date, First Survey 21st January 1926 Last Survey 14 October 1926  
 Reg. Book. Sp. m. Number of Visits 75

9/120 on the Single Twin Triple Quadruple Screw vessel "TACOMA"  
 Tons Gross 5904.85 Net 3636.68

Built at Nakskov By whom built M. S. Nakskov Skibsværft Yard No. 28 When built 1926  
 Engines made at Copenhagen By whom made P. Rasmussen & Hain's Maskin Engine No. 1188 When made 1926  
 Donkey Boilers made at Nakskov By whom made P. Rasmussen & Hain's Maskin Boiler No. 5 When made 1926  
 Brake Horse Power 2100 Owners P. Rasmussen & Hain's Maskin Port belonging to Copenhagen  
 Nom. Horse Power as per Rule 541 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted yes  
 Trade for which vessel is intended Ocean Trade, general cargo

IL ENGINES, &c.—Type of Engines Vertical Diesel, trunk type 2 or 4 stroke cycle 4 Single or double acting single  
 Maximum pressure in cylinders 35 kg/cm<sup>2</sup> Diameter of cylinders 550 mm Length of stroke 1000 mm No. of cylinders 2 x 6 No. of cranks 2 x 6  
 Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 730 mm Is there a bearing between each crank yes  
 Revolutions per minute 135 Flywheel dia. 2120 mm Weight 6820 kg Means of ignition compression Kind of fuel used Diesel oil  
 Crank Shaft, dia. of journals as per Rule 339.98 mm as fitted 340 mm Crank pin dia. 340 mm Crank Webs Mid. length breadth shrunk Thickness parallel to axis 213 mm  
 Flywheel Shaft, diameter as per Rule 339.98 mm as fitted 340 mm Intermediate Shafts, diameter as per Rule 7.03" as fitted 7 1/8" Thrust Shaft, diameter at collars as per Rule 7.48" as fitted 3 1/2" (on crank shaft)  
 Tube Shaft, diameter as per Rule as fitted Screw Shaft, diameter as per Rule 9.97" as fitted 10 1/8" Is the shaft fitted with a continuous liner yes

Bronze Liners, thickness in way of bushes as per Rule 0.60" as fitted 3/4" 13/16" Thickness between bushes as per rule 9/16" 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 junctions made by fusion through the whole thickness of the liner in one length yes  
 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 Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft yes  
 Length of Bearing in Stern Bush next to and supporting propeller 4'-3"

Propeller, dia. 11'-3" Pitch 9'-3" No. of blades 3 Material bronze whether Moveable no Total Developed Surface 30 sq. feet  
 Method of reversing Engines direct Is a governor or other arrangement fitted to prevent racing of the engine when decelerated yes Means of lubrication  
 Thickness of cylinder liners 38 mm Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting 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 through funnel

Cooling Water Pumps, No. 2 off centrifugal, 120 to Is the sea suction provided with an efficient strainer which can be cleared within the vessel yes  
 Bilge Pumps worked from the Main Engines, No. 2 Diameter 150 mm Stroke 170 mm Can one be overhauled while the other is at work yes  
 Pumps connected to the Main Bilge Line No. and Size 1 off, 150 to 1 off, 20 to 2 off, 150 to dia x 170 mm stroke (single acting) How driven Electromotor Electromotor main engines  
 Ballast Pumps, No. and size 1 off, 150 to Lubricating Oil Pumps, including Spare Pump, No. and size 2 off, 40 to

Are two independent means arranged for circulating water through the Oil Cooler yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge  
 Pumps, No. and size:—In Machinery Spaces 4 off 2 1/2" 1 off 3 1/2" 1 off 5" (ballast pump)  
 In Holds, &c. 1 off 2 1/2" 2 off 3" 2 off 3 1/2" 1 off 3 1/2" 2 off 3" 1 off 2 1/2" 2 off 3" 1 off 2 1/2" Tunnel well stop: 1 off 2 1/2"  
 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 off 5" 1 off 3 1/2"  
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes yes Are the Bilge Suctions in the Machinery Spaces  
 led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges yes

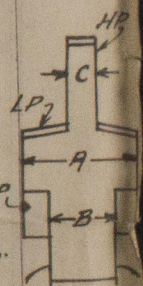
Are all Sea Connections fitted direct on the skin of the ship yes Are they fitted with Valves or Cocks valves, except blow off cock  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates yes Are the Overboard Discharges above or below the deep water line above  
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel yes Are the Blow Off Cocks fitted with a spigot and brass covering plate yes  
 What pipes pass through the bunkers None How are they protected  
 What pipes pass through the deep tanks None Have they been tested as per Rule  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another yes Is the Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from upper grating

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork  
 Main Air Compressors, No. 2 No. of stages 3 Diameters 600-540-120 Stroke 320 Driven by main engines  
 Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters 225-68-78 Stroke 220 Driven by auxil. Diesel engines  
 Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters 2 1/2" LP Stroke 5" Driven by hand  
 Scavenging Air Pumps, No. Diameter Stroke Driven by

Auxiliary Engines crank shafts, diameter as per Rule 161.5 mm as fitted 162 mm

AIR RECEIVERS:—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 man hole on starting air receiver  
 Is there a drain arrangement fitted at the lowest part of each receiver yes arrangements made for cleaning air receivers  
 High Pressure Air Receivers, No. 2 Cubic capacity of each 250/125 litres Internal diameter 312 mm thickness 23 mm  
 Seamless, lap welded or riveted longitudinal joint lap welded Material S.M. steel Range of tensile strength 29.2 to 50 kg/cm<sup>2</sup> Working pressure by Rules 70.6 kg/cm<sup>2</sup>  
 Starting Air Receivers, No. 1 Total cubic capacity 16 m<sup>3</sup> = 565 cb' Internal diameter 5'-11 1/2" 6'-1" thickness 15/16" 1 1/2" 1"  
 Seamless, lap welded or riveted longitudinal joint 33% riveted Material S.M. steel Range of tensile strength 26 to 44 kg/cm<sup>2</sup> Working pressure by Rules 25 kg/cm<sup>2</sup>



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If so, is a report now forwarded? *yes.*

Receivers yes Separate Tanks yes

### Oil Fuel Burning Arrangements

*The foregoing is a correct description.*

foregoing is a correct description of the  
 BUREAU OF THE  
 MASKIN OG SKIBSBYGGERI

*Manufacturer.*

Dates of Survey while building	During progress of work in shops--	During erection on board vessel--	Total No. of visits	
	21/1. 1/2. 4/2. 9/2. 19/2. 20/2. 4/3. 8/3. 11/3. 15/3. 16/3. 22/3. 24/3. 25/3. 6/4. 12/4. 13/4. 15/4. 16/4. 19/4. 20/4. 21/4. 22/4. 23/4. 26/4. 3/5. 5/5. 6/5. 10/5. 11/5. 14/5. 15/5. 17/5. 18/5.	22/5. 25/5. 26/5. 27/5. 28/5. 31/5. 1/6. 2/6. 4/6. 19/6. 29/6. 1/7. 2/7. 5/7. 7/7. 8/7. 12/7. 16/7. 17/7. 20/7. 21/7. 23/7. 24/7. 28/7. 4/8. 24/8. 1/9. 3/9. 17/9. 26.	23/7. 29/7. 18/8. 28/8. 9/9. 15/9. 20/9. 21/9. 24/9. 1/10. 5/10. 26.	75.

Dates of Examination of principal parts—Cylinders <sup>15/4, 16/4, 22/4</sup> and Covers <sup>22/8, 28/8, 4/6</sup> Pistons <sup>16/4, 5/5, 4/5</sup> Rods <sup>✓</sup> Connecting rods <sup>11/3, 6/4, 26/5</sup>  
Crank shaft <sup>21/1, 9/2, 11/3, 13/4, 14/5, 19/5</sup> Flywheel shaft <sup>✓</sup> Thrust shaft <sup>22/3, 19/4, 14/5, 19/5</sup> Intermediate shafts <sup>16/3, 24/3, 6/4, 13/4, 18/6</sup> Tube shaft <sup>✓</sup>  
Screw shaft <sup>4/3, 22/3, 24/3, 19/4, 6/5, 23/1</sup> Propellers <sup>29/7, 24/9</sup> Stern tubes <sup>21/1, 1/2, 29/7</sup> Engine seatings <sup>23/7</sup> Engines holding down bolts <sup>18/8</sup>  
Completion of fitting sea connections <sup>29/7</sup> Completion of pumping arrangements <sup>18/8</sup> Engines tried under working conditions <sup>29/6, 5/7, 1/10</sup>  
Crank shaft, Material *S. M. steel.* Identification Mark <sup>LLOYDS No 8101-8106</sup> <sup>Q 14.5-26, 19.5-26</sup> Flywheel shaft, Material <sup>✓</sup> Identification Mark <sup>✓</sup>  
Thrust shaft, Material *S. M. steel.* Identification Mark <sup>LLOYDS No 8102-8107</sup> <sup>Q 14.5-26, 19.5-26</sup> Intermediate shafts, Material *S. M. steel.* Identification Marks <sup>LLOYDS No 8132-3-4-5-6-7-8-9</sup> <sup>K 18-6-26</sup>  
Tube shaft, Material <sup>✓</sup> Identification Mark <sup>✓</sup> Screw shaft, Material *S. M. steel.* Identification Mark <sup>LLOYDS No 8196-7</sup> <sup>K 23-7-26</sup>

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

Is this machinery duplicate of a previous case yes ✓ If so, state name of vessel M/S "ASTORIA" ✓

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

This machinery has been built under Special Survey and in accordance with the Society's Rules. He approves plans and the requirements contained in the Secretary's letters & dated 30/1-23/2-8/4-27/4-22/8-27/10 25.

The material used in the construction has been examined and tested as required by the Rules, either by us or as per Certificate produced, and the workmanship is of high quality throughout.

On completion of the installation the main and auxiliary engines were tested under full power working conditions and on the final trial trip the maneuvering of the main engines was tested and all found satisfactory.

Recommend the vessel's machinery to have notations of **LMC-10-26**  
"OIL ENGINES" and "C.L."

15 = 2.18.27.  $\frac{y}{x}$  109.62

The amount of Entry Fee ...

Special ... .. 1864: 45:

When applied for,

20.10 19

When received,

8-11-20

FITTING OF Donkey Boiler ~~100~~ ... £ 50: 00

STARTING AIR RECEIVER 76. 43  
Travelling Expenses (if any) 52. -

LATE FEE

Committee's Minute

*Assigned*

+ Lumb. 10. 26 Ch  
Oil Engines. RB 150

CERTIFICATE WRITTEN

*A. O. Tupper* *Whithier*  
Engineer Surveyor to Lloyd's Register of Shipping.



Copenhagen

Continuation of Report No. 7353 dated 9th October 26. on the

Steel Twin S. Motor Vessel "TACOMA"

List of Auxiliary Machinery.

- 1 off 150 to rotary wing pump ("IRON") for ballast purpose
- 2 " combined lubricating oil & cooling water pumps, each set consisting of a 40 to cog wheel lubricating oil pump and a 120<sup>th</sup> centrifugal cooling water pump. All worked by Electro. motors.
- 1 off 30 to cog wheel pump for transferring fuel oil from storage tanks to settling tanks and over board.
- 1 off combined bilge & sanitary pump, consisting of 2 trunk pistons, one for each purpose out of 20 to capacity each.
- 2 off de Laval's centrifugal oil purifiers, resp for fuel oil and lubricating oil.
- 1 off 75.40.75<sup>th</sup> m duplex feed pump for the donkey boiler.
- 1 off 2-cylinder and
- 2 " 1 " 4 stroke, cycle, single acting Diesel oil engines (310<sup>th</sup> m dia x 350<sup>th</sup> m stroke x 400 Rev. per min), each working a compound wound dynamo, resp. of 66 and 33 kwhs. at 220 Volts pressure, supplying current for the following purposes:
- 1 off 15 HP shrink wound Electromotor for the ballast pump.
- 2 " 25 " " " " lubricat. oil & cooling water pumps.
- 1 " 10 " " " " oil fuel transfer pump.
- 1 " 9 " " " " bilge & sanitary pump.
- 2 " 2 " " " " oil purifiers.
- 1 " 2 " " " " workshop.
- 1 " 4.5 " comp. " " " CO2 compressor.
- 2 " 2 " serie " " " engine turning gears.
- 1 " 16 " comp. " " " electro-hydraulic steering gear.
- 1 " 15 " serie " " each working a 1.2-3 to cargo winch
- 2 " 22 " " " " " 1.6-5 to " " "
- 1 " 48 " comp. " " for the windlass.
- 1 " 12 " shrink " " directly coupled to and working a 7 1/2 kwhs. compound wound dynamo (110 V x 68 A x 1500 R/m) giving current for the electric light installation.

H. H. H. H.

SURVEYOR TO LLOYD'S  
REGISTER OF SHIPPING

The foregoing is a correct description.

AKTIESELSKABET  
BURMEISTER & WAIN  
H. H. H. H.

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Lloyd's Register  
Foundation 2/2

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