

pt. 4b.

REPORT ON OIL ENGINE MACHINERY.

No. 7970.

Received at London Office 21 MAY 1929

of writing Report 5th May 1929 When handed in at Local Office 7th May 1929 Port of Copenhagen

in Survey held at Copenhagen Date, First Survey 19th September 1928 Last Survey 29th April 1929

Number of Visits 83.

140 on the ^{Single} Twin ^{Motor} Screw vessel "STJERNEBORG" Tons Gross 4532.25 Net 2772.10

built at Copenhagen By whom built Akt. Burmeister & Wain's Maskin og Skibsbyggeri. Yard No. 557 When built 1929.

engines made at Copenhagen By whom made Akt. Burmeister & Wain's Maskin og Skibsbyggeri. Engine No. 1536 When made 1929.

key Boilers made at Copenhagen By whom made Akt. Burmeister & Wain's Maskin og Skibsbyggeri. Boiler No. 1823 When made 1929.

ake Horse Power 2200 Owners Akt. Dampskibsselskabet Dannebrog (S. Hansen) Port belonging to Copenhagen

n. Horse Power as per Rule 543 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

de for which vessel is intended For carrying cargo in oversea trade.

ENGINE, &c.—Type of Engines Vertical Diesel Oil Engines (Twin piston type) 2 or 4 stroke cycle 4 Single or double acting single

imum pressure in cylinders 35 kg/cm² Diameter of cylinders 550 mm = 21 5/8" Length of stroke 1000 mm = 39 3/8" No. of cylinders 2 x 6 = 12 No. of cranks 2 x 6 = 12

of bearings, adjacent to the Crank, measured from inner edge to inner edge 730 mm/m Is there a bearing between each crank No

utions per minute 140 Turning wheel dia. 1262 mm Weight 850 kg. Means of ignition Air compression Kind of fuel used Crude oil, flash point above 180° F.

k Shafts dia. of journals as per Rule 339.98 mm as fitted 340 mm Crank pin dia. 340 mm Crank Webs Mid. length breadth 670 mm M d. length thickness 193 mm Thickness parallel to axis 213 mm Thickness around eye-hole 159 mm

heel Shaft, diameter as per Rule as fitted Intermediate Shafts, diameter as per Rule 9.2" as fitted 9 1/4" Thrust Shafts diameter at collars as per Rule 9.7" as fitted 340 mm

Shaft, diameter as per Rule as fitted Screw Shafts diameter as per Rule 10.17" as fitted 10 1/2" Is the screw shaft fitted with a continuous liner Yes

ze Liners, thickness in way of bushes as per Rule 0.61" as fitted 1/16" x 3/4" Thickness between bushes as per rule 0.46" as fitted 1/2" Is the after end of the liner made watertight in the

er boss Yes. If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner Liners in one length.

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

o 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

If so, state type Length of Bearing in Stern Bush next to and supporting propeller 4'-6"

eller, dia. 11'-0" Pitch 9'-3" No. of blades 3. Material Bronze whether Moveable No Total Developed Surface 29 sq. feet

od of reversing Engines Direct reversible Is a governor or other arrangement fitted to prevent racing of the engine when started Yes Means of lubrication

ced 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

nducting material Lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine in the funnel.

ng Water Pumps, No. 1 off Centrifugal. 120 tons. Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

Pumps worked from the Main Engines, No. 2 off Diameter of tanks 150 mm Stroke 175 mm Can one be overhauled while the other is at work Yes

s connected to the Main Bilge Line No. and Size 1 off, Ballast pump 150 tons, 2 off independent Bilge pump 26 tons each, 2 off engine bilge pumps, 20 tons each How driven by electric motor, by electric motors, by the main engines.

st Pumps, No. and size 1 off, Rotary wing pump, 150 tons Lubricating Oil Pumps, including Spare Pump, No. and size 2 off, Cog wheel pumps, 45 tons each.

o independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

, No. and size:—In Machinery Spaces 4 off: 3" diam. In F.P.T. & A.P.T. 1 off in each 2 1/2" dia. In I.B. tanks 3" dia. arranged as per approved plan.

lds, &c. No. 1 hold 2 off 3" dia. No. 2 hold 2 off 3 1/2" dia. No. 3 & 4 hold 3 off in each 3" dia. Deep tank 2 off to bilges 3 1/2" and 4 off to tank 4 1/2" dia. Funnel well 1 off 3" dia.

endent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2 off 3" dia. and 1 off 6" dia.

l the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces

m easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes Valves except the boiler blow

l Sea Connections fitted direct on the skin of the ship Yes Are they fitted with Valves or Cocks of cocks.

y 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

y 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

pipes pass through the bunkers no bunkers How are they protected

pipes pass through the deep tanks Suction pipes to No. 1 & 2 holds and to the fore peak tank Have they been tested as per Rule Yes

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

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

partment to another Yes Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from at upper deck level

ood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

Air Compressors, No. 2 off No. of stages 3 Diameters 600-540-120 mm Stroke 320 mm Driven by main engines.

ary Air Compressors, No. 1 off No. of stages 2 Diameters 318-285-78 " Stroke 170 mm Driven by auxiliary engines.

Auxiliary Air Compressors, No. 1 off No. of stages 2 Diameters 90-35 " Stroke 120 mm Driven by hand.

enging Air Pumps, No. Diameter Stroke Driven by

ary Engines crank shafts, diameter as per Rule 161.8 mm as fitted 170 mm

RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule Yes

he internal surfaces of the receivers be examined Yes What means are provided for cleaning their inner surfaces Starting air receivers fitted with man holes

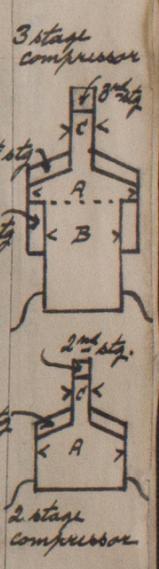
ce a drain arrangement fitted at the lowest part of each receiver Yes Is it fitted with a watertight door Yes Is it fitted with a watertight door Yes

Pressure Air Receivers, No. 2 off cubic capacity of each 125 litres I-125 litres II-260 " III-28 " Internal diameter I-404 mm II-312 mm III-7 1/4" thickness I-19 mm II-28 mm III-3/16" 71.5 kg/cm²

less, lap welded or riveted longitudinal joint III lap welded. Material S.M. Steel Range of tensile strength I-28.3 tons II-28.3 tons Working pressure by Rules III-93.5 "

ting Air Receivers, No. 1 off Total cubic capacity 565 cubic feet Internal diameter 5'-11 1/4" and 6'-1" thickness Shell 15/16" + 1/32" ends 1/16" 25.1 kg/cm²

less, lap welded or riveted longitudinal joint double butt straps Material S.M. Steel Range of tensile strength 44.4-47.2 kg/mm Working pressure by Rules 25.1 kg/cm²



Cpms. Ppt. No. 199

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Lloyd's Register Foundation 1850-0032

IS A DONKEY BOILER FITTED? *Yes*

If so, is a report now forwarded? *Yes*

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

Receivers *Yes*. Starting air Separate Tanks *Yes*

Donkey Boilers *Yes*

General Pumping Arrangements *Yes*

Oil Fuel Burning Arrangements *✓*

SPARE GEAR *As per accompanying list.*

List of plans forwarded per book post:

- 2 off - Crank & Thrust shafts, Intermediate & Screw shafts.
- 2 " - Crank shafts for auxiliary engines.
- 1 " - Starting air receiver.
- 1 " - Daily service oil fuel tanks.
- 1 " - General pumping arrangement.
- 1 " - Arrangement of deep tank bilge suction.
- 1 " - Pumping arrangement in machinery space.
- 1 " - Donkey Boiler.
- 2 " - Electric Installation and Wiring diagram.

The foregoing is a correct description,

**AKTIESELSKABET
BURMEISTER & WAINSKIN- OG SKIBSBYGGERI**

Manufacturer.

Dates of Survey while building

| | | | | | |
|------------------------------------|-----------------------------------|--|--|---|--|
| During progress of work in shops - | 19, 24, 25, 26 | Apr. - 2, 4, 6, 10, 12, 15, 16, 25, 30 | Oct. - 1, 2, 9, 14, 15, 16, 17, 19, 20, 22, 26, 27, 29 | Nov. - 3, 4, 5, 7, 10, 13, 15, 22, 28 | Dec. 1928 - 3, 4, 8, 9, 12, 14 |
| | During erection on board vessel - | 24, 28, 29, 31 | Jan. - 2, 5, 7, 8, 13, 14, 15, 19, 21, 22, 25, 26, 27 | Feb. - 4, 5, 6, 8, 14, 18, 20, 23, 26, 30 | March - 4, 8, 10, 13, 17, 18, 20, 22, 23, 24, 25, 27, 29 |

Total No. of visits **83**.

Dates of Examination of principal parts - Cylinders and Covers ^{9/11, 14/11, 20/11, 26/11, 10/12, 29/12} Pistons ^{6/11, 20/11, 5/12, 20/12} Rods ^{17/11, 7/12, 13/12, 28} Connecting rods ^{2/10, 12/10, 9/11}

Crank shafts ^{19/9, 27/9, 4/10, 3/10, 19/11, 13/12, 28} Flywheel shaft *✓* Thrust shafts ^{30/10, 2/11, 5/12, 28} Intermediate shafts ^{12/11, 18/2, 29} Tube shaft *✓*

Screw shafts ^{18/11, 22/11, 28/11, 9/1} Propeller ^{2/2, 18/4, 29} Stern tube ^{4/11, 8/1, 22/2, 29} Engine seatings ^{19/1, 22/1, 4/3, 29} Engines holding down bolts ^{13/1, 17/1, 20/1}

Completion of fitting sea connections ^{4/3, 29} Completion of pumping arrangements ^{25/4, 29} Engines tried under working conditions ^{23/1, 24/1, 25/1, 27/1}

Crank shafts Material *S.M.I. Steel* Identification Mark *N: 9781* Flywheel shaft, Material *✓* Identification Mark *✓*

Crank pins *S.M. Cast steel* Identification Mark *N: 9786* Flywheel shaft, Material *✓* Identification Mark *✓*

Thrust shafts Material *S.M.I. Steel* Identification Mark *N: 9787* Intermediate shafts, Material *S.M.I. Steel* Identification Mark *✓*

Tube shaft, Material *✓* Identification Mark *✓* Spare " " " *S.M.I. Steel* Identification Mark *✓*

Screw shaft, Material *S.M.I. Steel* Identification Mark *✓*

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

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with *Yes*

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *No* If so, have the requirements of the Rules been complied with *✓*

Is this machinery duplicate of a previous case *Yes* If so, state name of vessel *"ASTORIA", "TACOMA", "VICTORIA", "COLUMBIA"*

General Remarks (State quality of workmanship, opinions as to class, &c. *In accordance with the Rules for Special Survey we have examined the material and workmanship during construction of the machinery until the final test under working conditions and found to be, so far as can be seen, good and efficient in every respect.*

The material used in the construction of the engines and the air receivers has been tested as required by the Rules either by us, or as per test certificates produced.

The dimensions are as specified and in accordance with the Rules, the approved plans and the requirements contained in the Secretary's letters E. dated the 20th & 30th March, 4th June, 11th & 20th July, 9th August and 17th October 1928.

On the trial the main engines and the whole auxiliary machinery have been tested under full power working condition and found to work satisfactorily, - and the manœuvring of the main engines tested under working condition and found satisfactory.

Recommend the vessel's machinery to have notation in the Register Book of **L M C - 4. 29** OIL ENGINE

2- 26. 18. 20

| | | | |
|----------------------------------|-----------|---------|---------------------------|
| The amount of Entry Fee ... | <i>4/</i> | 109.20 | When applied for, 16.5.29 |
| Special ... | <i>4/</i> | 1859.13 | When received, 5.6.29 |
| Starting Receiver ... | <i>4/</i> | 76.44 | |
| Fitting Donkey Boiler Fee ... | <i>4/</i> | 50.00 | |
| Travelling Expenses (if any) ... | <i>4/</i> | 30.30 | |
| Late Fee ... | <i>4/</i> | 30.00 | |

Committee's Minute **FRI. 24 MAY 1929**

A. O. Jacobs
Engineer Surveyor to Lloyd's Register of Shipping.



Certificate (if required) to be sent to Surveyors Office - Copenhagen.

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

CERTIFICATE WRITTEN. *L M C 4: 29 Oil Engines*

L.P. 100 lbs