

## REPORT ON OIL ENGINE MACHINERY.

No. 7/83.

Received at London Office 12 FEB 1926

Report 6<sup>th</sup> February 1926 When handed in at Local Office

Port of

Copenhagen

Survey held at

Copenhagen

Date, First Survey 15<sup>th</sup> July 1925.Last Survey 3<sup>rd</sup> February 1926

Number of Visits 72.

on the

Single  
Twin  
TripleMotor  
Screw vessel

"NORDPOL"

Tons { Gross 5885.98  
Net 3657.68

Built at Copenhagen

By whom built Akt. Burmeister &amp; Wain's Yard No. 340 When built 1925-26

made at Copenhagen

By whom made Akt. Burmeister &amp; Wain's Yard No. 1123 When made 1925-26

Boilers made at Copenhagen

By whom made Akt. Burmeister &amp; Wain's Yard No. 1789 When made 1925

Horse Power 2000.

Owners Akt. Dampskibsselskabet Nordn. (S. Brown, jun. &amp; Co.) Port belonging to Copenhagen

Horse Power as per Rule

Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

GINES, &amp;c. Type of Engines Vertical Diesel Engines (Crosshead type) 2 or 4 stroke cycle 4 Single or double acting Single

Pressure in cylinders 35 kg/cm<sup>2</sup> No. of cylinders 2 x 6 No. of cranks 2 x 6 = 12 Diameter of cylinders 590 mm = 23 1/4"

Stroke 900 mm = 35 1/8" Revolutions per minute 130 Means of ignition Compressed air Kind of fuel used Fuel oil, Flash point above 150° F

Pitching between each crank

Span of bearings (Page 92, Section 2, par. 7 of Rules) 780 mm

Pitching between centres of main bearings

1180 mm

Is a flywheel fitted Yes Dia. = 2040 mm Weight 6.6 Tons Diameter of crank shaft journals as per Rule 352 mm as fitted 365 mm

Crank pins

365 mm

Breadth of crank webs as per Rule 466 mm as fitted 780 mm Thickness of ditto as per Rule 197 mm as fitted 225 mm

Flywheel shaft

352 mm

Diameter of tunnel shaft 9.278"

Diameter of thrust shaft 9.742"

Screw shaft

10.215 mm

Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes

End of the liner made watertight in the propeller boss

Yes

If the liner is in more than one length are the joints burned liner fitted in one length

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

Is the shaft fitted, is the shaft lapped or protected between the liners

If without liners, is the shaft arranged to run in oil

Gland fitted to stern tube

Length of stern bush 4'0"

Diameter of propeller 11'3"

Propeller 9'3"

No. of blades 3

state whether moveable no

Total surface 30 square feet

Reversing Direct reversible

Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes

Thickness of cylinder liners 48 mm

Cylinders fitted with safety valves

Means of lubrication Forced lubrication

Are the exhaust pipes and silencers water cooled or lagged with

Exhaust pipes are water cooled 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 up inside the funnel.

Is the exhaust led up inside the funnel

No. of cooling water pumps 2 off Is the sea suction provided with an efficient strainer which can be cleared

Vessel

No. of bilge pumps fitted to the main engines 1 off to each engine

Diameter of trunk 160 mm Stroke 130 mm

Overhauled while the other is at work

Yes

No. of auxiliary pumps connected to the main bilge lines 2 off

How driven by electric motors

No. and sizes of suction connections connected to both main bilge pumps and auxiliary bilge pumps: In engine room 2 off 3" main bilge pump 2 off 3" main bilge line 2 rotary wing pumps

In double bottom tanks the suction pipes 3/2" arranged as per approved plan. No. of ballast pumps 1 off How driven by electric motor Sizes of pumps capacity 1500 tons

Is the pump fitted with a direct suction from the engine room bilges

Yes

State size 6"

Is a separate auxiliary pump suction fitted in

Are all the bilge suction pipes fitted with roses

Yes

Are the roses in Engine Room always accessible Yes

Are connections on Engine Room bulkheads always accessible

none

Are all connections with the sea direct on the skin of the ship except the cooling water Yes suction fitted at the bottom.

Valves or cocks

Valves except the donkey boiler

Are they fixed sufficiently high on the ship's side to be seen without lifting the floor plates

Yes

Charge 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 the bilge suction pipes, cocks and valves arranged so as to prevent any

Yes

Are the bilge suction pipes, cocks and valves arranged so as to prevent any

Is the screw shaft tunnel watertight

Yes

Is it fitted with a watertight door

Yes

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

Air compressors

2 off

No. of stages 3

Diameters 580 mm, 520 mm, 136 mm Stroke 300 mm

Driven by the main engines

Auxiliary air compressors

1 off

No. of stages 2

Diameters 400 mm, 360 mm Stroke 260 mm

Driven by an electric motor

All auxiliary air compressors

1 off

No. of stages 2

Diameters 160 mm, 34 mm Stroke 80 mm

Driven by a steam engine

Pumping air pumps

Diameter

Stroke

Driven by

If auxiliary Diesel Engine crank shafts

as per Rule

154 mm

Are the air compressors and their coolers made so as to be easy of access

Yes

RECEIVERS: No of high pressure air receivers

3

Internal diameter

Cubic capacity of each

Material

Seamless, lap welded or riveted longitudinal joint

Range of tensile strength

Capacity

Material

Seamless, lap welded or riveted longitudinal joint

Double butt straps

Tensile strength

ends 27.0-28.3

Working pressure

25 ATM

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

Are starting air receivers are fitted with man holes

Is there a drain arrangement fitted at the lowest part of each receiver

Are receivers to be cleaned internally by means of steam and caustic soda





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				LLOYD'S TEST 30 LBS	
COVERS	23/11, 18/12 25, 9/1 26.	15 lbs per sq"	30 lbs per sq"	23/11, 18/12 25, 9/1 26	
JACKETS	4/12, 9/12, 11/12 25.	15 lbs per sq"	30 lbs per sq"	4/12, 9/12, 11/12 25.	
PISTON WATER PASSAGES	The pistons are cooled by oil				
MAIN COMPRESSORS—1st STAGE	10/11, 8/12 25.	4 ATM.	100 lbs per sq"	LLOYD'S TEST 100 LBS	
2nd	2/11 25.	16 ATM.	35 ATM.	LLOYD'S TEST 35 ATM.	
3rd	4/12 25.	65 ATM.	130 ATM.	LLOYD'S TEST 130 ATM.	
AIR RECEIVERS—STARTING	2/11, 12/11 25.	25 ATM.	39 ATM.	LLOYD'S TEST 39 ATM.	
INJECTION	10/12 25, 11/1 26	65 ATM.	130 ATM.	LLOYD'S TEST 130 ATM.	
AIR PIPES	20/12, 24/12, 31/12 25, 4/1, 25/1 26	25 ATM.	50 ATM.	LLOYD'S TEST 50 ATM.	
FUEL PIPES					
FUEL PUMPS	27/11, 2/12 25	1 ATM	10 ATM	LLOYD'S TEST 10 ATM	
SILENCER					
EXHAUST PIPE—WATER JACKET	18/12, 24/12 25	15 lbs per sq"	30 lbs per sq"	LLOYD'S TEST 30 LBS	
SEPARATE FUEL TANKS	19/12 25	0	10 lbs per sq"	LLOYD'S TEST 10 LBS	

PLANS. Are approved plans forwarded herewith for shafting

Receivers for Starting Air Receivers Separate Tanks

SPARE GEAR

As per accompanying list.

The foregoing is a correct description,

AKTIESELSKABET  
BURMEISTER & WAIN'S MASKIN- OG SKIBBYGGERI

Manufacturer.

Dates of Survey while building  
During progress of work in shops - 15 July, 4, 10, 25 Aug. = 2, 8, 14, 15, 23, 25 Sept. = 1, 7, 10, 15, 30 Oct. = 2, 4, 5, 7, 9, 10, 11, 12, 13, 14, 16, 17, 19, 20, 21, 23, 24, 25, 27, 28 Nov.  
During erection on board vessel - 1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 14, 15, 18, 19, 22, 24, 28, 29, 31 Decr 1925 = 2, 4, 5, 6, 8, 11, 13, 15, 16, 19, 20, 22, 25, 27, 28 Jan. = 1, 2, 3 Febr, 1926.  
Total No. of visits 72.

Dates of Examination of principal parts—Cylinders 7/12, 4/12, 25 Covers 25/9, 10, 23/11, 28/11  
Crank shafts 4/2, 9/10, 30/10, 14, 25/11 Thrust shafts 19/8, 30/10 Tunnel shafts 2/9, 9/10, 25/9, 10, 30/10 Screw shafts 23/4, 10, 15/10, 13/11 Propellers 23/25, 20/1 26. Stern tubes 23/11, 24/11 25 Engine seatings 19/1, 24/1, 1/2

Engines holding down bolts 16/1, 20/1, 22/1, 26. Completion of pumping arrangements 27/1, 2/2 26. Engines tried under working conditions 27/1, 28/1, 3/2 26.

Completion of fitting sea connections 24/11, 25. Stern tube 28/11 25. Screw shaft and propellers 20/1, 26.

Material of crank shafts SMI Steel Identification Mark on Do. 3/2, 9/12 25 Material of thrust shafts SMI Steel Identification Mark on Do. 10/12 25.

Material of spare crank shaft SMI Steel Identification Marks on Do. 9/12 25 Material of screw shafts SMI Steel Identification Marks on Do. 23/11, 25.

Material of tunnel shafts SMI Steel Identification Marks on Do. 9/12 25 Material of spare screw shaft SMI Steel Identification Marks on Do. 10/12 25.

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 LIMA, COMETA, KEDOE, NORABO, NORDHVA

General Remarks (State quality of workmanship, opinions as to class, &c. In accordance with the Rules for Special Survey we have examined

material and workmanship from the commencement of construction until the final test of the main and auxiliary machinery under

power working condition and found it good 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 certificates of test produced.

The dimensions are as specified and in accordance with the Rules, the approved plans and the requirements contained in

London letters E, dated the 27th March, 15th & 17th April, 3rd & 15th December 1925.

On the trial trip the main engines and the whole auxiliary machinery have been tested under full power working condition and found to be

satisfactorily, - the manœuvring of the main engines has been tested under working condition and found satisfactory.

Recommend the vessel to have notation in the Register Book of LMC-2.26 OIL ENGINES. CL

The amount of Entry Fee ... 118.20 When applied for, 10.2.1926

Special ... 2261.56 When received, 25/2/26

Donkey Boiler Fee ... 132.74

ELECTRIC INSTALLATION ... 669.80

Travelling Expenses (if any) ... 30.00

Lat. Fee ... 30.00

Committee's Minute

Assigned

+ L.M.C. 2:26. C.L.

Oil Engines



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Lloyd's Register Foundation



Twin Screw Motor Vessel "NORDPOL". of Copenhagen

Burmeister & Wain's Yard N<sup>o</sup> 340.

— " — & — " — Engines Nos 1123 & 1124.

The auxiliary machinery comprising.

One-150 Fons rotary wing pump for the ballast purpose

One combined pump with two separate tanks, - the one being for  
 bilge purpose and the other for sanitary purpose, each  
 of 15 Tons capacity. -

Two - 120 Tons centrifugal pumps for cooling water purpose.

Two - 40 tons rotary cog-wheel pumps for the forced oil lubrication purpose.

One-50 tons rotary cog-wheel pumps for the oil fuel transfer purpose.

One - 5 Tons centrifugal pump for the fresh water purpose.

One vertical two stage auxiliary air compressor.

One small vertical two stage auxiliary air compressor driven by a direct coupled steam engine.

all driven by  
electro motors.

Three - 2 cylinders, 4 stroke cycle single acting auxiliary Diesel oil engines, each of 75 H.P. fixed on the port side of the engine room, - each working a compound wound dynamo of 50 K.W. - 220 Volt and 227 amperes, - supplying electric current for motive power to the following viz:-

One-15 H.P.-shunt wound electro-motor working the ballast pump.

One - 9 H.P. " " " " working the combined ledge and sanitary pump.

Two - 25 H.P. " " " " working the cooling water pumps and forced oil lubrication pumps.

One - 15 H.P. " " " " working the oil fuel transfer pump.

One - 90 H.P. " " " " working the auxiliary air compressor.

Two - 6 H.P. serial wound " " working the turning gear to the main engines.

One - 2.7 HP. shunt wound " " working the turning lathe.

One - 1 H.P. " " " " working the drilling machine.

One - 7 H.P. " " " " working the CO<sub>2</sub> compressor to the provision refrigerating appliance.

7557. One - 2 H.P. " " " " working the brine pump to the " - " - " -

104 One - 1.25 H.P. " " " " working the fresh water pump.

OHVA. Two - 2 H.P. " " " " working the two oil separators.

mine. One - 0.2 H.P. " " " " working the motor in the gallery.

under Pore - 12 H.P. " " " " working the oil pump to the electro-hydraulic steering gear.

air line - 48 H.P. compound wound " " working the windlass.

ten - 15 H.P. serie wound " " working the ten - 3 tons cargo winches.

Dec-22 H.P. " " " " working the 5 Fours warping winch fitted aft.

And supplying current for the electric lighting purpose with the pressure reduced from 220 to 110 volts, after having passed the transformer. —

CL Transformer motor = 25 H.P. shunt wound, - transformer dynamo = 15 H.P. compound wound.

AKTIESELSKABET  
BURMEISTER & WAIN'S MASKIN- OG SKIBSBYGGERI

Manufacturers.

A. F. Truett

**SURVEYOR TO LLOYD'S  
REGISTER OF SHIPPING**

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