

# Report of Survey for Repairs, &c., of Engines and Boilers.

(Received at London Office)

23 OCT 1936

Date of writing Report 23 Sept 1936 When handed in at Local Office 10 Port of SHANGHAI

Survey held at HONG KONG Date, First Survey 4<sup>th</sup> Sept. Last Survey 15 Sept 1936

on the Machinery of the ~~Wood Iron & Steel~~ Screw M.V. "NORA MAERSK" (No. of Visits 6)

Gross 6271 Vessel built at Odense By whom Odense Staalskibsvftved When 1934 8

Net 3889 Engines made at Copenhagen By whom A. P. Moller When 1934 8

1026 Boilers, when made (Main) (Donkey) 1934

Owners A/S D/S Svendborg og A/S D/S af 1912 Owners' Address \_\_\_\_\_

Managers \_\_\_\_\_ Port Copenhagen Voyage \_\_\_\_\_

If Surveyed Afloat or in Dry Dock Both (State name of Dock.) New Com Dock

Particulars of Classification (which must be inserted precisely as in Register Book & Supplements).

CHARACTER. X for Special Survey Date of last Survey and of Periodical Surveys.	Years since last examined.	Machinery and Boiler Surveys (Including date of N.B., if any).
<u>+100A1</u>	<u>with</u>	<u>+LMC 8,34</u>
<u>freeboard</u>	<u>2,36</u>	<u>+Lloyd's RMC</u>
	<u>7,36</u>	<u>11,35</u>
		<u>Oil Engine C.L.</u>
		<u>Port chamber for temp. 27° F.</u>
		<u>Carrying oil F. P. above 150° F.</u>
		<u>in deep tanks</u>

Particulars of Examination and Repairs (if any) Damage

Medical Surveys, when held, must be reported in detail and seriatim in the terms of the Rules. State clearly the nature and extent of Examinations and subsequent Repairs. Repairs on account of Damage (the cause of which must be stated) should be separated from Repairs due to other causes; and the nature and initials of any letters respecting this case.

Damage cases where the Surveyor has not made a special damage report he is required to state whether he offered his services for this purpose, and why they were declined Yes. Not required

Has a damage report made by anyone else? If so, by whom? Underwriters' Surveyors

Did the Surveyor personally go inside each Main Boiler separately and make a thorough examination at this time? Yes

Did the Surveyor personally go inside each Donkey Boiler separately and make a thorough examination at this time? Yes

Were any parts of the Boilers not examined? No

What special means, in the absence of internal examination, were adopted by the Surveyor to assure himself of the thorough efficiency of those parts of each Boiler? Oil Engine CONTINUOUS SURVEY.

What was the latest date of internal examination of each boiler? 23 Sept 1936

Did the Surveyor examine the Safety Valves of the Main Boiler? Yes To what pressure were they afterwards adjusted under steam? 100 lb

Did the Surveyor examine the Safety Valves of Donkey Boiler? Yes To what pressure were they afterwards adjusted under steam? 100 lb

Did the Surveyor examine all the manholes, doors and their fastenings of the Main Boilers? Yes and of the Donkey Boilers? Yes

Did the Surveyor examine the drain plugs of the Main Boilers? Yes and of the Donkey Boiler? Yes

Did the Surveyor examine all the mountings of the Main Boilers? Yes and of the Donkey Boiler? Yes

Has the main shaft now been drawn and examined? Yes Is it fitted with continuous liner? Yes Is an approved appliance fitted at the after end of the shaft to permit of it being efficiently lubricated? Yes

Has the donkey shaft now been changed? Yes If so, state reasons \_\_\_\_\_ Has it a continuous liner? Yes Is an approved appliance fitted at the after end of the shaft to permit of it being efficiently lubricated? Yes

State the date of examination of Screw Shaft 23 Sept 1936 State the distance between lignum vitae or bearing metal of stern bush and top of after bearing of screw shaft \_\_\_\_\_

Engine parts, when referred to by numbers, should be counted from forward.

Is the Survey not complete, state what arrangements have been made for its completion and what remains to be done Complete.

Work done: For damage due to fire, flooding & beaching, Zamboanga, P.I. July, 1936. (See Shanghai Report No. 4081 and Report 10 dated 24th August, 1936, and Certificate dated 12th August, 1936 Zamboanga. Also telegrams etc. relating to case).

An examination was made of the machinery whilst the vessel lay afloat, also in dry dock at works of The Hongkong & Whampoa Dock Co., Ltd., Hongkong, in company with Mr. H. Nielsen, Owners' Representative, and Mr. J. Fabricius, acting on behalf of Danish Underwriters.

The machinery has suffered most extensive damage and the requirements to place the vessel in the same condition as she was before the damage occurred are contained in the specification attached hereto. (Papers 48, 49 & 50 refer to machinery)

The following is a brief general description:-

Main Engines: These have been subjected to considerable heat & to chilling by water. The

General Observations, Opinion, and Recommendation:— The machinery and electrical (see over)

State clearly what alteration, if any, is suggested to be made in the existing classification of the vessel's machinery in the Register Book, consequent upon this survey, and also any alteration required to be made in the records of the vessel's machinery, boilers, working pressures, &c.; thus, for example, B.S. 9,11, B.&M.S. 9,11, or L.M.C. 9,11, 140 lb., F.D., &c.)

Installation in the engine room, & all electric cables, are, in my opinion, beyond repair

except three or four small rotary pumps, refrigerating machinery, one auxiliary engine, and pipes & fittings below engine room platform.

See Rpt 89 letter dated 23/9/36

Fees applied for \_\_\_\_\_ Received by me, \_\_\_\_\_

Signature of Surveyor: J. P. ... Engineer Surveyor to Lloyd's Register of Shipping.

Date: FRI, 30 OCT 1936

Reference: Committee's Minute

Date: 3 NOV 1936

Signature: ...

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

Insert Character of Ship and Machinery precisely as in the Register Book.

Is a Certificate required? If so, to be sent to \_\_\_\_\_



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bedplate and thrust block, seven main frames and the blower casing are broken. The tank top (engine seating) beneath the bedplate is set up and vertical members below buckled. The crank shaft, rods & cam shafts & gear have been damaged by heat and water, and the white metal of all bearings has melted. Tie rods & bolts are bent. Cylinders & pistons, as far as seen have a scale about 1/32" thick on their working surfaces. The fuel pumps are damaged beyond repairs and many small fittings have melted.

*Journal shafting is damaged slightly by water.*

In my opinion no part of the main engine can be used again.

The same description and opinion applies to the Port Forward Auxiliary Engine, and the Port after Auxiliary Engine (except its crank shaft & Armature which was in Hongkong at the time of the fire) and to all spare gear for all engines and pumps.

The Starboard Auxiliary engine and the refrigerating machinery (except electric motors etc) are damaged chiefly by water and could be reconditioned.

All fuel & lubricating oil tanks are badly distorted and their fittings damaged, and cannot be repaired.

The donkey boiler and its fittings have been subjected to great heat and have been chilled by water. The same applies to the Air receiver and air bottle, and it is considered unwise to put these to further use. It is impracticable to take apart, anneal and remake.

There are a few small items among the rotary pumps which appear to be damaged only by water and which might be reconditioned, but their value is very small indeed compared with the total. Oil purifiers are damaged beyond repairs.

The whole of the electrical equipment, dynamos, motors, starters, switchboard, converter etc. are damaged beyond repairs.

All pipes & fittings above the engine room lower platform are considered to be damaged beyond repairs, but these below the platform may be removed, tested and parts renewed as necessary. This applies also to sea cocks & valves.

All gratings, lifting gear etc. is buckled and twisted.

Cause of Fire:-

The fire was due to a "blow back" from the donkey boiler in the following circumstances:

The oil firing system consisted of a tank containing fuel oil for feeding the burner. This tank was kept supplied with oil by a steam driven pump. An electrically driven air compressor was used to supply air to press on the top of the fuel oil in the tank & to supply air to the burner for atomising. The pipe for each purpose was led from a Tee piece on the air compressor discharge.

One generator set was running but this failed temporarily & the small air compressor for the donkey boiler firing system stopped & the burner "went out". In the meantime the steam pump continued to supply oil to the service tank until it overflowed through the compressed air pipe, across the Tee piece & out of the burner into the boiler furnace.

The generator set was started & the small air compressor put into action again, a torch applied to the burner with the result that there was a "blow back" & the fuel oil which had been flooding the furnace ignited. The fire then spread throughout the engine room, and later from one space to another as described in Rpt. 10 dated 24th August, 1936.

In the specification of repairs this system has been abandoned. The boiler, as is usual in vessels of this size & type, was not screened off from the rest of the machinery.

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