

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

No. 4092

(Received at London Office)

23 OCT 1936

Date of writing Report 23 Sept 1936 When handed in at Local Office 10 Port of SHANGHAI  
 in Survey held at HONG KONG Date, First Survey 4<sup>th</sup> Sept. Last Survey 15 Sept 1936  
 78 on the Machinery of the 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 Akt. Burmeister & Wain When 1934 8  
 1026 Boilers, when made (Main) (Donkey) 1934  
 Owners A/S D/S Svendborg og A/S D/S Owners' Address af 1912  
 Managers Port Copenhagen Voyage  
 If Surveyed Afloat or in Dry Dock Bulk.  
 (State name of Dock.) Kowloon Dock

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

CHARACTER. ☒ for Special Survey Date of last Survey and of Periodical Surveys. Years and months since last survey. Machinery and Boiler Surveys (including date of N.B., if any).

+100A1	with	+LMC	8,34
freeboard	2,36	+Lloyd's RMC	11,35
	7,36		
		Oil Engine	C.L.
		Port chamber for temp. 27°F.	
		Carrying oil F. P. above 150°F.	
		in deep tanks	

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 damage being detailed in the body of the report, should be briefly summarised at the end of the report. State also the names 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.

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

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

Donkey ☒

Was not done, state for what reasons? —

What parts of the Boilers could not be thus thoroughly examined? —

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? —

Latest date of internal examination of each boiler —

Has Surveyor examine the Safety Valves of the Main Boiler? ☒ To what pressure were they afterwards adjusted under steam? —

Has Surveyor examine the Safety Valves of Donkey Boiler? ☒ To what pressure were they afterwards adjusted under steam? —

Has Surveyor examine all the manholes, doors and their fastenings of the Main Boilers? ☒ and of the Donkey Boilers? ☒

Has Surveyor examine the drain plugs of the Main Boilers? ☒ and of the Donkey Boiler? ☒

Has Surveyor examine all the mountings of the Main Boilers? ☒ and of the Donkey Boiler? ☒

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

Has shaft now been changed? ☒ If so, state reasons —

Has shaft now fitted been previously used? ☒ Has it a continuous liner? ☒ Is an approved appliance fitted at the after end of the shaft to permit of it being efficiently lubricated? ☒

Date of examination of Screw Shaft — 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.

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

Now 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

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

Image or Repair Fee (if any) £ : Expenses (if chargeable) £ :

Fees applied for 19 Received by me, 19

Committee's Minute 3 NOV 1936

Engineer Surveyor to Lloyd's Register of Shipping.

Lloyd's Register Foundation

7970-7971M

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



W 464

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. *Scum shaft 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 in usual vessel of this size & type, was not screened off from the rest of the machinery.

N.B.—If this Report is copied by copying Press, especial care must be taken that the copying paper is not so much damped as to spread the ink, or to cause it to show through to the other side.