

Tonnage Net 319.2 Engines made at Wallsend By whom Parsons marine
 Nominal Horse Power 400 Boilers, when made (Mam) 1936 (Donkey)
 No. of Main Boilers 256 (Set) Wallsend Shipping Co. Ltd.

Report No. 898 In Lieu of Report Form No. 9
 Fees Charged and collected by this 31st. Day of March Rs. 320-00

LOYDS REGISTER OF SHIPPING
SURVEY REPORT ON THE MAIN BOILERS AND MACHINERY OF THE BRITISH
STEEL SCREW TURBINE STEAMSHIP "HOPE STAR"

OWNERS:- Messrs. The Hopomount Shipping Co. Ltd.
PORT OF REGISTRY:- Newcastle.
REGISTERED TONNAGE:- Gross 5267
 Not 3192
BOILERS:- Two Main 285 lbs/ins².
 One Donkey 120 lbs/ins².
ENGINES:- Parsons Turbines, double reduction gearing.
VESSEL BUILT:- 1935 by:- Messrs. Swan Hunter and
 Wigham Richardson Ltd. Newcastle.
ENGINES BUILT:- 1935 by:- Parsons, Wallsend.
BOILERS BUILT:- 1935 by:- The North Eastern Marine
 Engineering Co. Ltd., Wallsend.
CLASSIFICATION:- Plus 100 A.1 Lloyds Register Of Shipping.

I the undersigned, do hereby certify, that I did at the request of Messrs. Ireland Fraser & Co. Ltd, Lloyds Agents, Port Louis, Mauritius, survey the Main Boilers & Machinery of the abovenamed vessel on the 26th. Day Of February 1943 & on subsequent dates, and report as follows:-

The Captain states, same being noted on the log book, that at 6-10 p.m. on the 18th. February 1943, whilst the vessel was on a voyage Bombay-Durban, the engines eased down of their own accord and speed reduced to 5 knots. 19th. February:- Turbine drains and No. 2 & 3 nozzle gauges were found to be choked, and unable to obtain full vacuum. 20th. February:- Engines were stopped, air pump was examined and valves changed, and from time of re-starting engines at 7-15 p.m., until the arrival of the vessel of this Port at 1-45 p.m. on the 25th. February, the vessel averaged a speed of about 4 knots.

MANOEUVERING ON ARRIVAL:- The Chief Engineer states that he found the turbines started easily on Astern, but with difficulty and evidence of steam blowing through to the condenser on Ahead.

PROPELLOR:- Fouling of the propeller at and about the rope guard might have caused or contributed to the above, and following my recommendations and before opening up the turbine casings, the rope guard was examined by a diver, and found to be clear.

BOILERS & MACHINERY:- Following my recommendations, the Main Boilers H.P. & L.P. Turbines, and Main Steam Piping, condenser, Fresh Water feed Reserve Tanks, and other parts have been opened up & examined and revealing as follows:-

AIR PUMP:- This has been examined at sea and found to be satisfactory and same has not been re-opened for examination at this port.

MAIN CONDENSER:- This has been sighted on the steam side, and the tube surfaces, as far as can be ascertained without removal of tubes is in good condition. The condenser has been tested on the water side, by a head of water of the vessels loaded draught, and there is no evidence of leakage through faulty tubes and ferrules.

L.P. TURBINE:- Cover and rotor removed, and the whole of the stator and rotor blading examined and found as follows:-

Astern:- Bronze blading clear and in sound condition together with shrouding. The three rows of steel blading and shrouding are in sound condition, but the blading surfaces are rough and eroded.

Ahead:- The whole of the stator & rotor blading surfaces, although not as heavily as the H.P., were coated with salt and scum deposits. The whole of this section has been scraped and cleared of deposit and the blading and binding strips are now in good and sound condition, with the exception of the five rows of steel blading the surfaces of which are rough and eroded.

Rotor Body:- The surface of the rotor body was very rusty and the whole of same covered with salt and scum deposits. The whole of this has been scraped and cleaned.

Original Duly Stamped and initialled:- K.S.M

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L.P. TURBINE (Continued):- Rotor Shaft:- The Journals & Bearings are in good condition, and the wear of both bearings by Makers' Gauge down by 2/1000ths. of an inch since the last record.
Labyrinth Packing:- The labyrinth packing strips of both the stator and rotor are in good condition.
Astern Nozzles & Valves:- This has been dismantled, examined and valves overhauled. This section was found to be in good condition, with only slight deposits on the surfaces of valves, valve chest & nozzles.
Stator Drain Plugs:- Cleared and now in good condition.

REMARKS:- The whole of the L.P. Turbine has been cleaned, and the last five blades of the the last three stages port side of the stator cover, which were slightly bent when the cover was removed, have been straightened and the binding and blades tested and found sound prior to re-assembly.

RECOMMENDATIONS:- Steel blading of both the rotor and stator to be renewed at first opportunity, owing to their corroded condition.

PIPING BETWEEN THE H.P. & L.P. TURBINES:- The whole of the Ahead & Astern steam piping between the H.P. & L.P. Turbines has been removed for examination, and the scum deposits cleared from the inner surfaces.

L.P. TURBINE:- Cover and rotor removed, and the whole of the stator and rotor blading examined and found as follows:-

Astern:- Blading clear and in good sound condition, together with shrouding.

Ahead:- Impulse Wheel & Stage Blading:- The whole of the rotor & Stator blading surfaces, were covered with salt and rusty scum deposits, and in several stages the space between blades being caked and choked. The whole of this section has been scraped and cleared of all deposit, and the blading and binding strips are now in good and sound condition.

Rotor Body:- The surface of the rotor body was very rusty and the whole of same covered with salt and scum deposit. The whole of this has been cleaned and is now in good condition.

Labyrinth Packing:- This section has been cleared of rust. The Stator strips are in good condition, but the rotor strips are slightly chipped.

Rotor Shaft:- The journals and bearing are in good condition, and the shafting down 2/1000ths. of an inch by Makers' Gauge since the last record.

Drains & Drain Pipes:- The stator drains were found to be choked. Same together with the piping have now been cleared.

Ahead & Astern Valves & Nozzles:- Both have been examined, overhauled and cleaned of all deposit, and are now in good condition.

The Astern section showed slight deposits on the surfaces of the valve chest, valves & nozzles, but the Ahead nozzles were partly choked with salt and scum deposits, particularly salt, and heavy scum deposits were found on the surfaces of the valve chest and valves.

REMARKS:- The whole of the H.P. turbine has been cleaned, and is now in good condition.

RECOMMENDATIONS:- I recommend that the H.P. cover be removed and the blading and rotor body re-examined, particularly so the labyrinth strips, when the blading of the L.P. Turbine is being renewed.

LUBRICATION & TURNING TESTS:- Following the re-assembly of both turbines, the lubricating oil pressure has been tested, and the turbines revolved by hand turning gear, and found satisfactory.

Original Duly Stamped and initialled K.S.M.

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Net 3192 Engines made at Wallsend By whom Clean Yurkine (Donkey) Owners Wallsend Shipping Co. Ltd. Owners' Address

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STOP VALVES, INTERMEDIATE VALVES, MANOEUVRING VALVES AND MAIN STEAM PIPING:-

The whole of this section has been dismantled, cleaned and overhauled, and the valves and valves seats of the ~~main~~ Stop and manoeuvring valves machined. The condition of the above was as follows:-
 1. Piping from Port Boiler. Deposit very slight.
 2. Piping from Starboard Boiler. Coated with a good amount of deposit.
 3. Intermediate Piping and valve to Manoeuvring Valve coated with deposit.
 4. Manoeuvring Valves in fair condition, but the chest and valve surfaces coated with rusty scum deposits.
REMARKS:- From the above it would indicate that priming has been taking place in the Starboard Boiler.

TURBINE STEAM FILTER:- Dismantled, examined and cleaned, the condition of same showing no abnormal amount of deposit.

FRESH WATER SYSTEM:- The four compartments of the Fresh Water Boiler Feed Reserve Tanks, together with the feed filter, have been opened and examined, and nothing abnormal by way of deposit has been found in this section. The quality of water taken on at this Port being as follows:-
 Chlorinated Drinking Water containing 0.20/0.80 parts chlorine to One million parts water.

MAIN BOILERS:- Both Port & Starboard Main Boilers have been opened up and examined in the steam and water spaces.

PORT BOILER:- Contained a good amount of muddy deposits, and apart from the rusting of the steam space surfaces, including the deheater piping above water level, there appears to be nothing abnormal in this boiler.

STARBOARD BOILER:- Contained a lesser amount of muddy deposits than the Port Boiler, priming being probably responsible for this. As in the case of the Port Boiler, the steam space surfaces are rusty, and the pipe leading to the deheater pierced.

REMARKS:- Both Port & Starboard Boilers have been cleaned, the deheater inlet bend of the Starboard Boiler renewed, and the steam dryers of both boilers examined and found to be in good condition.

SUPERHEATER & DEHEATER ELEMENTS:- Port & Starboard Boilers:- Donkey Steam has been blown through the whole of these elements until clean condensate has been obtained. The initial condensate being muddy and dark in appearance.

GENERALLY:- In my opinion the slowing down of the engines on the 18th Feb. has apparently been due to the choking of the H.P. nozzles and coating and caking of the turbine blading, by scums and brackish water being carried over from principally the Starboard Boiler, probably caused by impurities introduced with harbour feed and the piercing of the deheater inlet bend of the Starboard Boiler.

In my opinion the vessel is now in a seaworthy condition, and I am transmitting a report to The Committee, Lloyds Register of Shipping London, stating that all repairs as recommended by me have been carried out to my entire satisfaction, and recommending that the vessel be continued as at present classed, without fresh record of survey, and subject to the recommendations of Page 2 of this report being carried out at first opportunity.

GIVEN UNDER MY HAND THIS 31ST DAY OF MARCH 1943, AT PORT LOUIS, MAURITIUS.
 Original duly stamped & signed **KENNETH S. MACDONALD**
SURVEYOR TO LLOYDS REGISTER OF SHIPPING

Rehnt No. 898

Kenneth S. Macdonald
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