

F. J. PICKTHALL
Ship & Engineer Surveyor
Solis, 1480
MONTEVIDEO.

Port of Montevideo.

August 10th, 1942.

100A1,

MACHINERY SURVEY REPORT



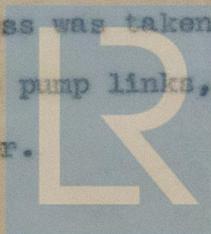
I, the undersigned surveyor, HEREBY REPORT that at the request of Edward M. Cooper, Lloyd's Agent, I visited the steamer "VIKING STAR", of London, 3928 tons net register, on vessel's arrival in distress on Aug: 5th: last with engine trouble, for the purpose of recommending measures to be taken in connection therewith.

According to deck log entries, owing to engine defects occurring at the start of the voyage from Buenos Aires to U.K., vessel anchored off English Bank at 4-24 pm on Aug: 4th:; at 12-35 pm on 5th: pilot came on board, vessel proceeded towards Montevideo, and anchored in the anteport at 2-15 pm.

According to engine-room log entries, about 30 mins. after leaving B-A on the night of Aug: 3rd: the H.P. cylinder again knocked very heavily at bottom of stroke but improved as engine was opened up to Full Ahead; L.P. bottom end then began to knock badly; Vessel anchored at 1-30 am on 4th: for about an hour and the L.P. bottom end was adjusted & a 1/16" liner taken out of foot of H.P. eccentric rod; after passing Recalada L.P. engine occasionally knocked at the top of the stroke and the L.P. valve rod chattered; H.P. valve rod chattered badly and its eccentric rod was throwing aft; H.P. still knocking occasionally. Anchored for repairs at 4-26 pm (4th:); H.P. piston valve was lifted and found in order; eccentric rod found out of line $\frac{3}{8}$ " and was lined up and the eccentric straps adjusted. While steaming to & entering Montevideo on 5th: the H.P. engine still knocked heavily, though the H.P. valve spindle chattering & knocking stopped. On opening up No:2 generator the L.P. piston rings were found broken & in small pieces in bottom of cylinder.

After consultation with the Chief Engineer, as the outstanding major defect appeared to be the last-mentioned heavy knocking in the H.P. engine, for which no satisfactory explanation was put forward, I recommended that the H.P. engine should be stripped entirely, its alignment checked and its bearing parts examined.

This work was started at 5 pm on Aug: 5th: and was carried on night & day. A taut wire extending down to the crankshaft and truly centred in the H.P. cylinder top & stuffing-box showed cylinder and guides to be in correct alignment. Incidentally, the centre of the H.P. crank was found to lie $5/32$ " forward of the above centre-line of the engine. The H.P. piston-rod and crosshead were taken to the lathe for testing, and were found true and square in every respect. The engine was then re-erected & checked step by step and found in order, except that the ahead guide-shoe had $1/16$ " excess of liners, which excess was taken out and a slightly less amount fitted on the astern side. The pump links, front & back, were taken apart, trammelled, and found in order.



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The re-assembling of the engine was completed on Saturday evening (Aug: 8th:), and on trying the engines under steam on Sunday morning the H.P. bottom end, crosshead bearings, guides and pump lever bearings worked smoothly, but a knock was definitely located in the H.P. cylinder at the bottom of the stroke.

On proceeding to open up the H.P. piston it was found that the rings (Campbell & Banks) were unable to be expanded out to the cylinder walls on account of the restricting stoppers on the main segment of the spring system coming in contact with the ends of the corresponding notches in the rings; also, that both tongue-pieces were broken & loose. A used pair of spare rings were found to be slightly less worn than the existing rings and were then adapted for use, it being necessary to lengthen the notches $5/32$ " in each case to permit the required expansion, to add $3/8$ " of washers to the inner spring system to provide the necessary compression under the junk-ring, and to make one new tongue-piece.

This work was completed by about 5 pm, and on trying the engines under steam once more, they worked smoothly and the former knock in the H.P. engine was no longer apparent.

No:2 generator:- In the meantime the L.P. piston of this engine had been taken ashore, an intact steel ring made, fitted & welded in place in substitution of the previous spring rings, machined to size, and the piston refitted. On running this generator under working conditions, same was found to be in proper order.

In view of the foregoing, I consider that this vessel's Machinery, so far as seen, is now in fit & seaworthy condition.

Remark:- During the overhaul of the H.P. piston on the 9th:, all its parts being hot, a junk-ring nut was accidentally knocked down into the top steam passage; on lifting the valve-chest cover & removing the piston-valve this nut was successfully fished out, together with another nut and a small piece of cast-iron discovered in the passage.



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